

Detailed Energy Audit for City of Newton - Phase 2

August 21, 2009



TABLE OF CONTENTS

EXECUTIVE SUMMARY 1

 Summary Table 3

 Cash Flow Table – Option A..... 4

SECTION A FACILITY PROFILE 7

 A.1 Baseline Energy Use..... 7

 A.2 Energy and Water Costs15

 A.3 Description of Buildings.....16

SECTION B UTILITY INFORMATION17

 B.1 Utility Rate Summary.....17

 B.2 Alternate Rate Options17

 B.3 Rebate & Subsidy Opportunities.....18

SECTION C SAVINGS OPPORTUNITIES19

 C.1 Summary Table.....19

 C.2 Energy Conservation Measures20

SECTION D APPENDIX.....26

 D.1 Sources of Information26

 D.2 Calculations27

EXECUTIVE SUMMARY

Executive Summary to come.

SECTION A

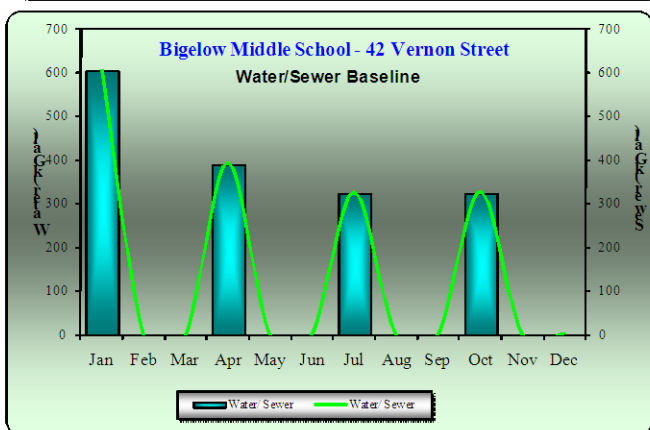
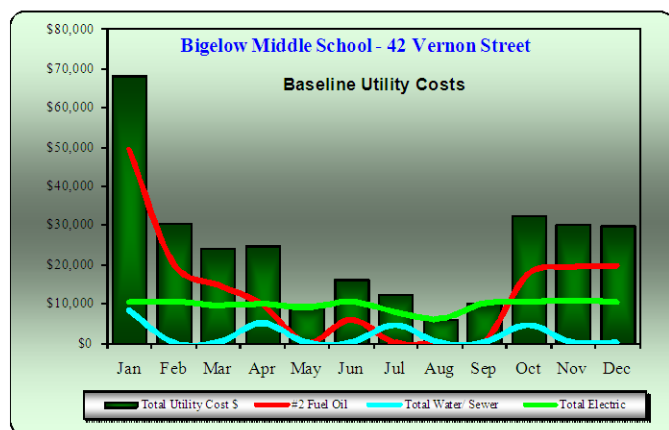
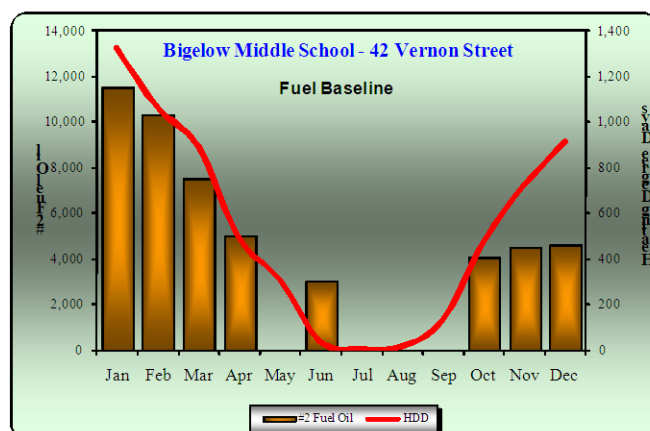
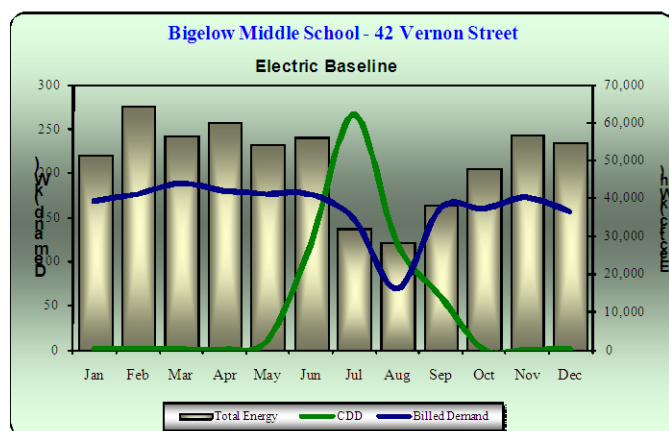
FACILITY PROFILE

A.1 BASELINE ENERGY USE

NORESCO obtained three years of electric and fuel utility data for the buildings included in Phase 2. We analyzed energy use for all buildings and compared energy use to heating and cooling degree day data. Baseline energy profiles are based on the the twelve month period from February 2008 to January 2009. We use this period because the actual annual heating degree days for this period are within 1% of the historical norm. Therefore, we expect that the annual fuel use for this period is representative of normal fuel use. Savings calculations for the energy conservation measures are based on these baseline energy profiles.

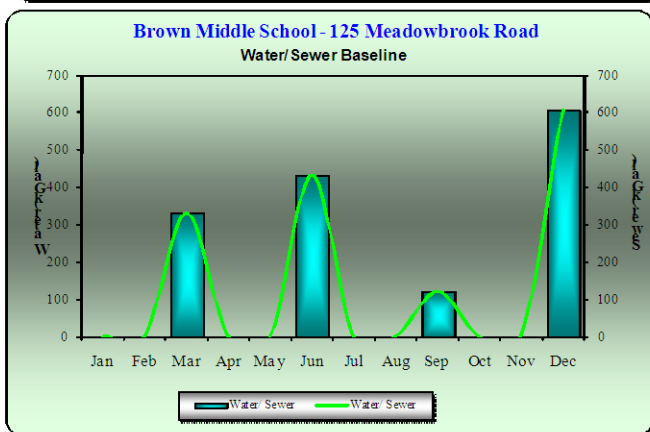
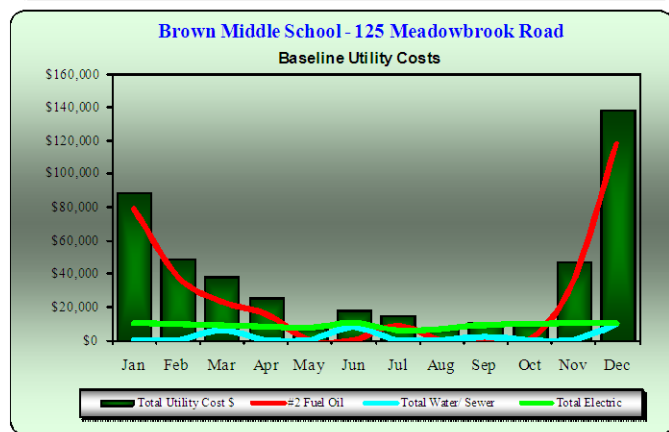
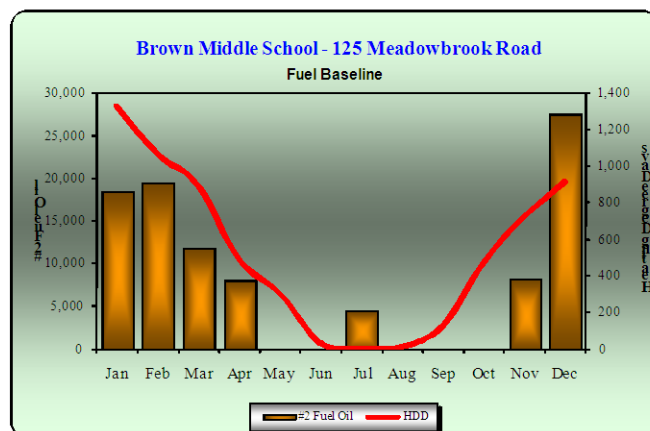
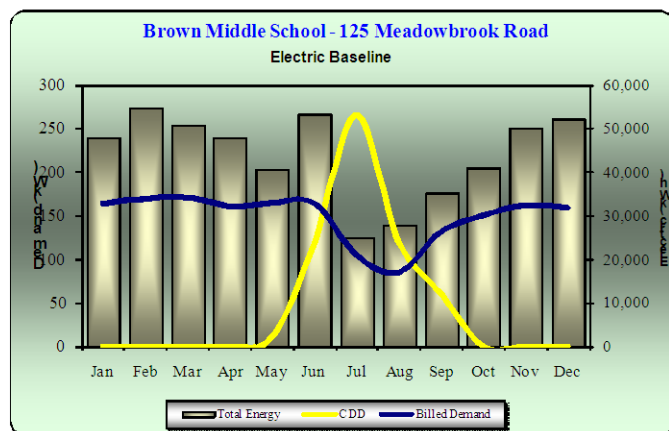
Bigelow Middle School

BASELINE: Feb-08 TO Jan-09																
Month	HDD	CDD	Billed Demand	Total Energy	Total Electric	Blended Unit Cost	#2 Fuel Oil	#2 Fuel Oil	#2 Fuel Oil	Total Monthly MMBTU (Gas & Oil)	Total Fuel Cost (\$)	Fuel Unit Cost	Water/ Sewer	Total Water/ Sewer	Annual Water Unit Cost	Total Utility Cost \$
			kW	kWh	Cost \$	\$/kWh	Gallons	Cost \$	\$/Gal		(Gas & Oil)	\$/MMBTU	HCF	Cost \$	HCF	
Jan	1,322	0	168.0	51,600	\$10,382	\$0.2012	11,517	\$49,271	\$4.28	1,612	\$49,398	\$30.64	604	\$8,426	\$13.95	\$68,205
Feb	1,061	0	176.0	64,400	\$10,421	\$0.1618	10,305	\$20,168	\$1.96	1,441	\$20,257	\$14.06	0	\$0	\$0.00	\$30,678
Mar	891	0	188.0	56,400	\$9,520	\$0.1688	7,501	\$14,681	\$1.96	1,051	\$14,793	\$14.08	0	\$0	\$0.00	\$24,313
Apr	489	0	180.0	60,000	\$9,895	\$0.1649	5,000	\$9,786	\$1.96	701	\$9,851	\$14.06	391	\$5,071	\$12.97	\$24,818
May	304	10	176.0	54,000	\$9,064	\$0.1679	0	\$0	\$0.00	3	\$80	\$32.19	0	\$0	\$0.00	\$9,144
Jun	33	118	176.0	56,000	\$10,443	\$0.1865	3,001	\$5,873	\$1.96	421	\$5,966	\$14.16	0	\$0	\$0.00	\$16,409
Jul	0	265	148.0	32,000	\$7,916	\$0.2474	0	\$0	\$0.00	2	\$86	\$40.91	324	\$4,520	\$13.95	\$10,114
Aug	13	120	68.0	28,400	\$6,021	\$0.2120	0	\$0	\$0.00	2	\$79	\$41.83	0	\$0	\$0.00	\$6,100
Sep	128	60	160.0	38,400	\$10,023	\$0.2610	0	\$0	\$0.00	2	\$91	\$39.54	0	\$0	\$0.00	\$10,114
Oct	473	0	160.0	48,000	\$10,471	\$0.2181	4,071	\$17,417	\$4.28	571	\$17,509	\$30.67	325	\$4,534	\$13.95	\$32,513
Nov	722	0	172.0	56,800	\$10,786	\$0.1899	4,500	\$19,252	\$4.28	631	\$19,336	\$30.66	0	\$0	\$0.00	\$30,123
Dec	911	0	156.0	54,800	\$10,285	\$0.1877	4,600	\$19,680	\$4.28	645	\$19,790	\$30.66	0	\$0	\$0.00	\$30,076
	6,347	573	1,928.0	600,800	\$115,227	\$0.1918	50,494	\$156,128	\$3.09	7,082	\$157,237	\$22.20	1,644	\$22,551	\$13.72	\$295,015
				6.50						76.2						\$3.19
				kWh/Sqft						Mbtu/Sqft						\$/Sqft
										12.0						
										Btu/Sqft/HDD						



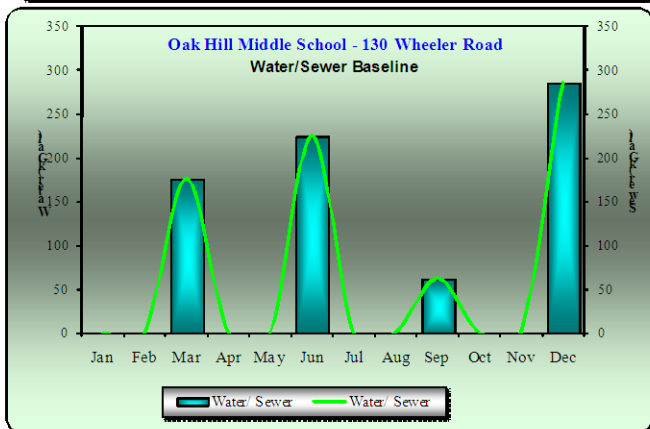
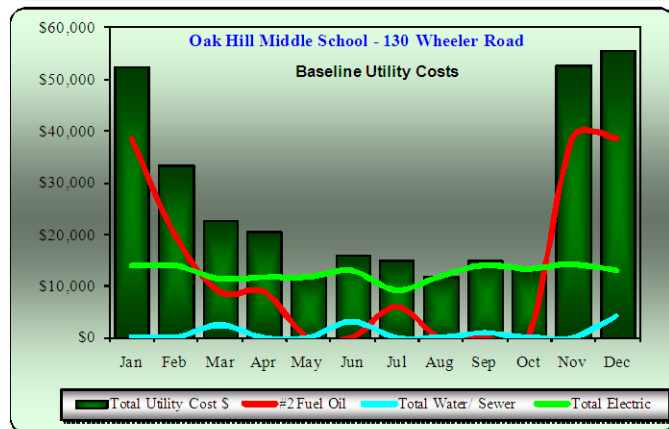
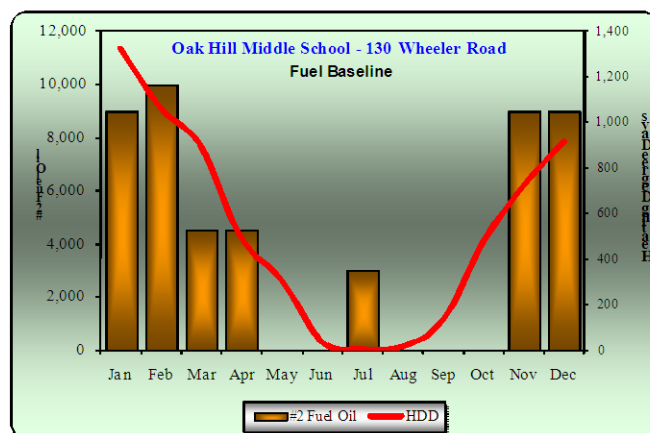
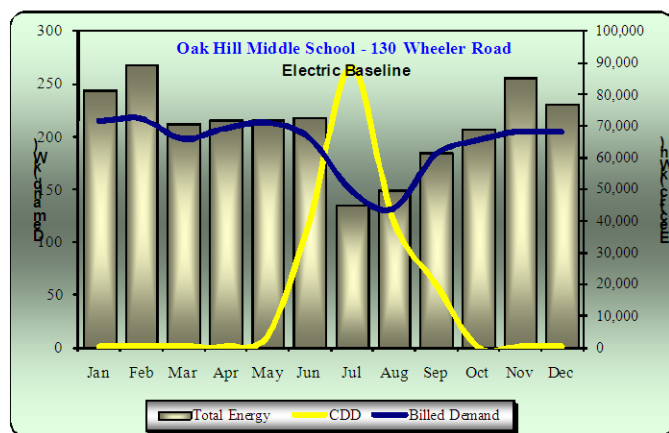
Brown Middle School

BASELINE:			Feb-08	TO	Jan-09											
Month	HDD	CDD	Billed Demand	Total Energy	Total Electric	Blended Unit Cost	#2 Fuel Oil	#2 Fuel Oil	#2 Fuel Oil	Total Monthly MMBTU (Gas & Oil)	Total Fuel Cost (\$)	Fuel Unit Cost \$/MMBTU	Water/ Sewer	Total Water/ Sewer	Annual Water Unit Cost	Total Utility Cost \$
			kW	kWh	Cost \$	\$/kWh	Gallons	Cost \$	\$/Gal		(Gas & Oil)	MMBTU	HCF	Cost \$	HCF	
Jan	1,322	0	164.0	48,000	\$9,873	\$0.2057	18,373	\$78,603	\$4.28	2,583	\$78,942	\$30.56	0	\$0	\$0.00	\$88,815
Feb	1,061	0	169.6	54,960	\$9,113	\$0.1658	19,400	\$37,970	\$1.96	2,828	\$39,948	\$14.13	0	\$0	\$0.00	\$49,061
Mar	891	0	171.2	50,800	\$8,589	\$0.1691	11,815	\$23,124	\$1.96	1,719	\$24,346	\$14.16	330	\$5,650	\$17.12	\$38,585
Apr	489	0	160.8	48,080	\$8,110	\$0.1687	8,079	\$15,812	\$1.96	1,210	\$17,530	\$14.49	0	\$0	\$0.00	\$25,640
May	304	10	164.8	40,800	\$7,207	\$0.1766	0	\$0	\$0.00	53	\$563	\$10.66	0	\$0	\$0.00	\$7,770
Jun	33	118	164.0	53,520	\$10,108	\$0.1889	0	\$0	\$0.00	31	\$552	\$17.75	433	\$7,413	\$17.12	\$18,073
Jul	0	265	104.8	24,960	\$5,845	\$0.2342	4,514	\$8,835	\$1.96	651	\$9,269	\$14.24	0	\$0	\$0.00	\$15,114
Aug	13	120	84.8	27,840	\$6,380	\$0.2292	0	\$0	\$0.00	22	\$451	\$20.80	0	\$0	\$0.00	\$6,831
Sep	128	60	131.2	35,200	\$8,759	\$0.2488	0	\$0	\$0.00	21	\$384	\$18.44	120	\$1,709	\$14.24	\$10,852
Oct	473	0	150.4	41,040	\$9,131	\$0.2225	0	\$0	\$0.00	35	\$609	\$17.41	0	\$0	\$0.00	\$9,740
Nov	722	0	161.6	50,320	\$9,657	\$0.1919	8,126	\$34,763	\$4.28	1,336	\$37,980	\$28.42	0	\$0	\$0.00	\$47,636
Dec	911	0	159.2	52,320	\$9,939	\$0.1900	27,535	\$117,799	\$4.28	3,942	\$119,428	\$30.30	607	\$8,644	\$14.24	\$138,010
	6,347	573	1,786.4	527,840	\$102,711	\$0.1946	97,841	\$316,906	\$3.24	14,431	\$330,002	\$22.87	1,490	\$23,415	\$15.71	\$456,127
				3.75						97.1						\$3.24
				kWh/Sqft						Mbtu/Sqft						\$/Sqft
										15.3						
										Btu/Sqft/HDD						



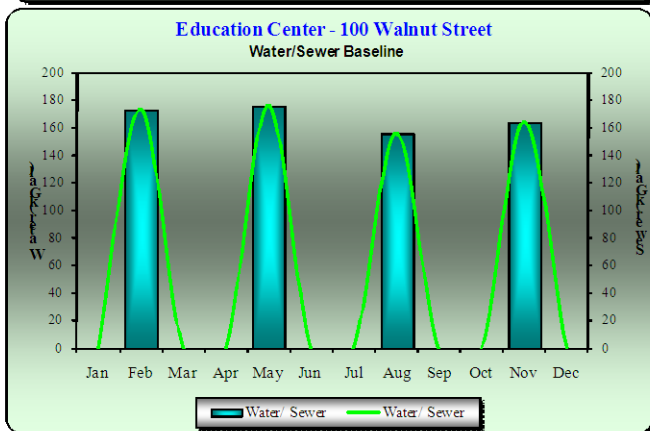
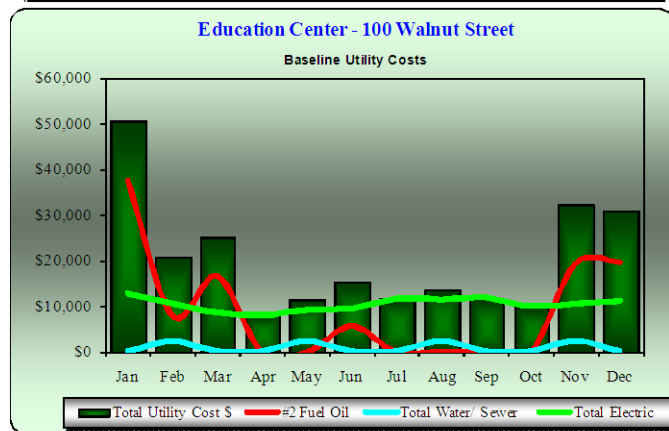
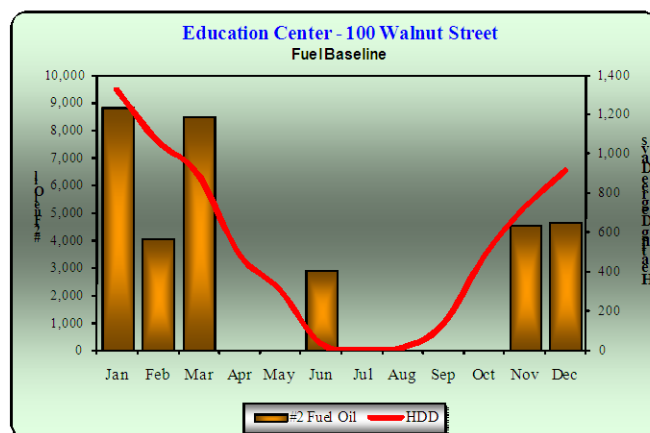
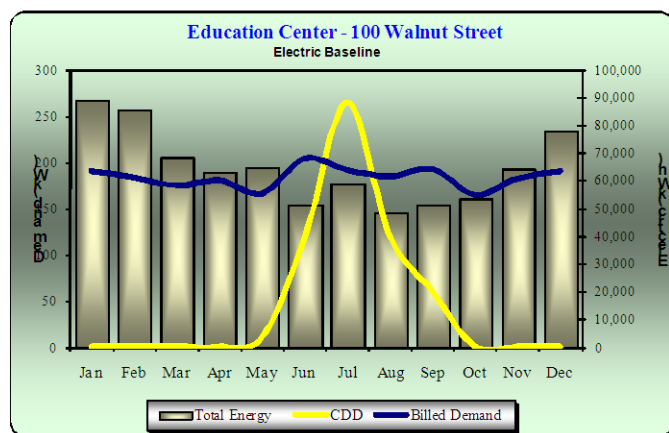
Oak Hill Middle School

BASELINE:	Feb-08	TO	Jan-09													
Month	HDD	CDD	Billed Demand	Total Energy	Total Electric	Blended Unit Cost	#2 Fuel Oil	#2 Fuel Oil	#2 Fuel Oil	Total Monthly MMBTU (Gas & Oil)	Total Fuel Cost (\$)	Fuel Unit Cost	Water/ Sewer	Total Water/ Sewer	Annual Water Unit Cost	Total Utility Cost \$
			kW	kWh	Cost \$	\$/kWh	Gallons	Cost \$	\$/Gal		(Gas & Oil)	\$/MMBTU	HCF	Cost \$	HCF	
Jan	1,322	0	214.0	81,500	\$13,942	\$0.1711	9,008	\$38,537	\$4.28	1,257	\$38,537	\$30.65	0	\$0	\$0.00	\$52,479
Feb	1,061	0	216.0	89,400	\$13,874	\$0.1552	10,000	\$19,572	\$1.96	1,396	\$19,572	\$14.02	0	\$0	\$0.00	\$33,446
Mar	891	0	197.0	70,920	\$11,431	\$0.1612	4,506	\$8,819	\$1.96	629	\$8,819	\$14.02	176	\$2,422	\$13.76	\$22,672
Apr	489	0	207.0	71,960	\$11,696	\$0.1625	4,500	\$8,807	\$1.96	628	\$8,807	\$14.02	0	\$0	\$0.00	\$20,504
May	304	10	212.0	71,800	\$11,754	\$0.1637	0	\$0	\$0.00	0	\$0	\$0.00	0	\$0	\$0.00	\$11,754
Jun	33	118	198.0	72,820	\$12,917	\$0.1774	0	\$0	\$0.00	0	\$0	\$0.00	225	\$3,096	\$13.76	\$16,013
Jul	0	265	148.0	44,900	\$9,237	\$0.2057	3,000	\$5,872	\$1.96	419	\$5,872	\$14.02	0	\$0	\$0.00	\$15,108
Aug	13	120	131.0	49,620	\$11,844	\$0.2387	0	\$0	\$0.00	0	\$0	\$0.00	0	\$0	\$0.00	\$11,844
Sep	128	60	182.0	61,700	\$14,003	\$0.2270	0	\$0	\$0.00	0	\$0	\$0.00	62	\$901	\$14.53	\$14,904
Oct	473	0	196.0	69,040	\$13,314	\$0.1928	0	\$0	\$0.00	0	\$0	\$0.00	0	\$0	\$0.00	\$13,314
Nov	722	0	204.0	85,480	\$14,214	\$0.1663	8,993	\$38,473	\$4.28	1,255	\$38,473	\$30.65	0	\$0	\$0.00	\$52,687
Dec	911	0	204.0	77,200	\$13,008	\$0.1685	9,001	\$38,508	\$4.28	1,257	\$38,508	\$30.65	286	\$4,156	\$14.53	\$55,672
	6,347	573	2,309.0	846,340	\$151,235	\$0.1787	49,008	\$158,588	\$3.24	6,841	\$158,588	\$23.18	749	\$10,574	\$14.12	\$320,397
				9.30						75.2						\$3.52
				kWh/Sqft						Mbtu/Sqft						\$/Sqft
										11.8						
										Btu/Sqft/HDD						



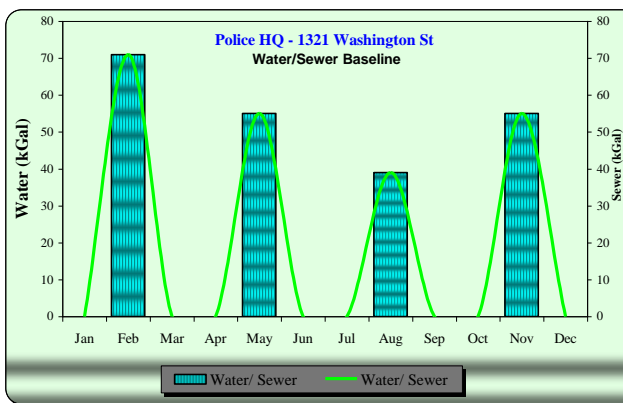
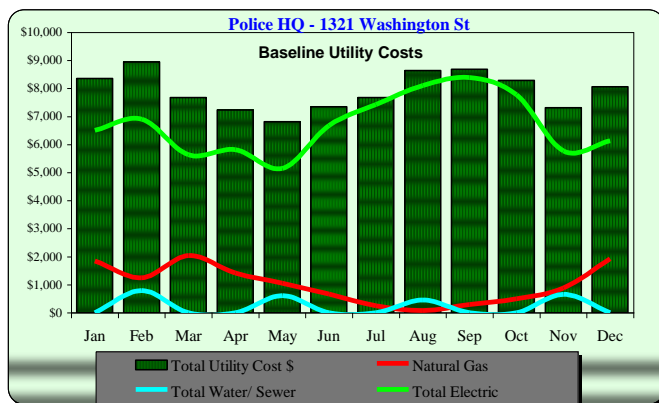
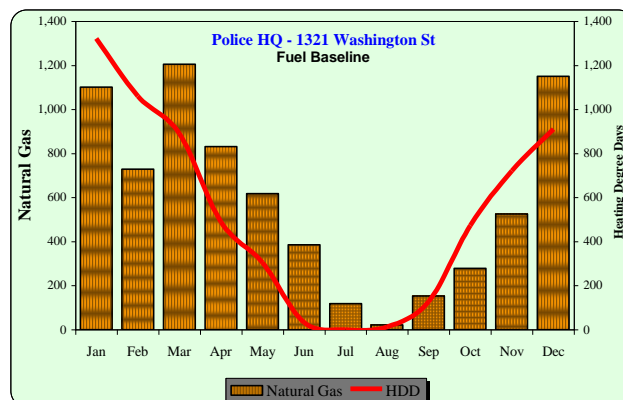
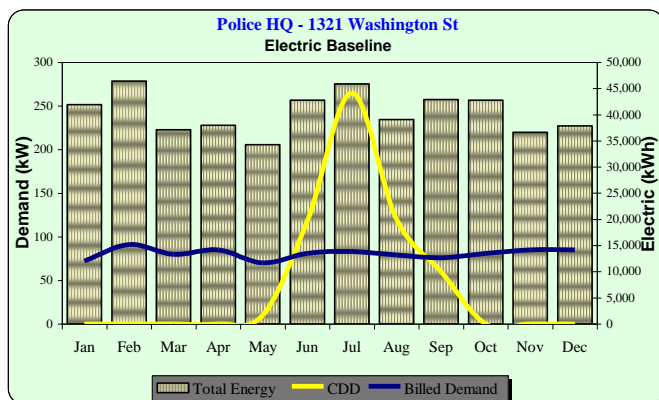
Education Center

BASELINE: Feb-08 TO Jan-09																
Month	HDD	CDD	Billed Demand	Total Energy	Total Electric	Blended Unit Cost	#2 Fuel Oil	#2 Fuel Oil	#2 Fuel Oil	Total Monthly MMBTU (Gas & Oil)	Total Fuel Cost (\$)	Fuel Unit Cost	Water/ Sewer	Total Water/ Sewer	Annual Water Unit Cost	Total Utility Cost \$
			kW	kWh	Cost \$	\$/kWh	Gallons	Cost \$	\$/Gal		(Gas & Oil)	\$/MMBTU	HCF	Cost \$	HCF	
Jan	1,322	0	190.2	89,018	\$12,815	\$0.1440	8,797	\$37,666	\$4.28	1,231	\$37,752	\$30.68	0	\$0	\$0.00	\$50,567
Feb	1,061	0	183.2	85,636	\$10,605	\$0.1238	4,064	\$7,965	\$1.96	572	\$8,065	\$14.11	173	\$2,197	\$12.70	\$20,867
Mar	891	0	174.2	68,344	\$8,526	\$0.1247	8,507	\$16,671	\$1.96	1,191	\$16,765	\$14.07	0	\$0	\$0.00	\$25,290
Apr	489	0	179.6	63,093	\$7,994	\$0.1267	0	\$0	\$0.00	4	\$91	\$23.84	0	\$0	\$0.00	\$8,085
May	304	10	165.8	64,978	\$9,104	\$0.1401	0	\$0	\$0.00	4	\$76	\$19.94	176	\$2,235	\$12.70	\$11,415
Jun	33	118	203.6	51,200	\$9,503	\$0.1856	2,922	\$5,719	\$1.96	412	\$5,814	\$14.11	0	\$0	\$0.00	\$15,317
Jul	0	265	191.3	59,030	\$11,595	\$0.1964	0	\$0	\$0.00	2	\$65	\$29.57	0	\$0	\$0.00	\$11,660
Aug	13	120	184.0	48,586	\$11,445	\$0.2356	0	\$0	\$0.00	2	\$66	\$29.99	156	\$2,223	\$14.25	\$13,734
Sep	128	60	192.0	51,235	\$11,757	\$0.2295	0	\$0	\$0.00	2	\$63	\$28.72	0	\$0	\$0.00	\$11,820
Oct	473	0	164.4	53,492	\$9,861	\$0.1843	0	\$0	\$0.00	4	\$88	\$23.72	0	\$0	\$0.00	\$9,949
Nov	722	0	182.0	64,572	\$10,472	\$0.1622	4,528	\$19,384	\$4.28	635	\$19,451	\$30.62	164	\$2,337	\$14.25	\$32,260
Dec	911	0	189.6	77,925	\$11,079	\$0.1422	4,618	\$19,769	\$4.28	648	\$19,822	\$30.58	0	\$0	\$0.00	\$30,900
	6,347	573	2,199.9	777,109	\$124,755	\$0.1605	33,436	\$107,174	\$3.21	4,707	\$108,117	\$22.97	669	\$8,992	\$13.44	\$241,865
				11.1						67.2						\$3.46
				kWh/Sqft						Mbtu/Sqft						
										10.6						
										Btu/Sqft/HDD						



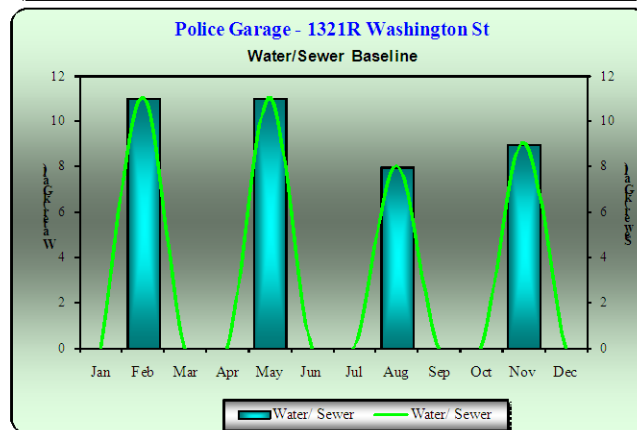
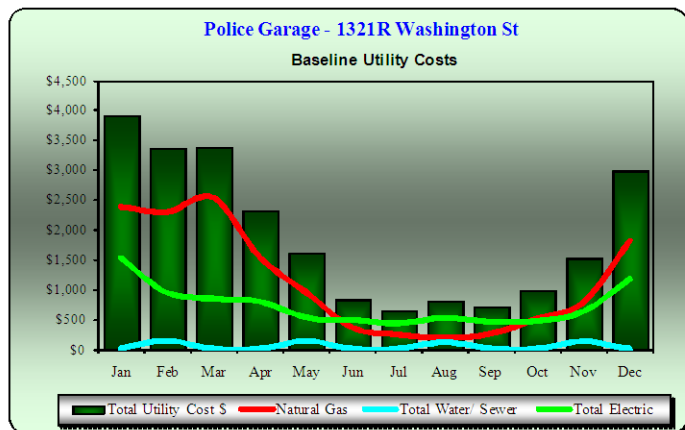
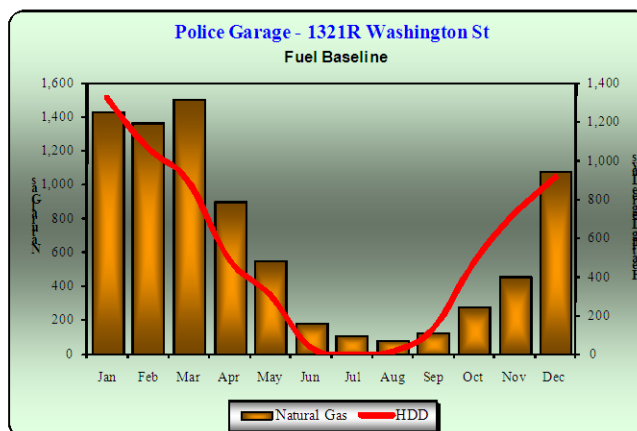
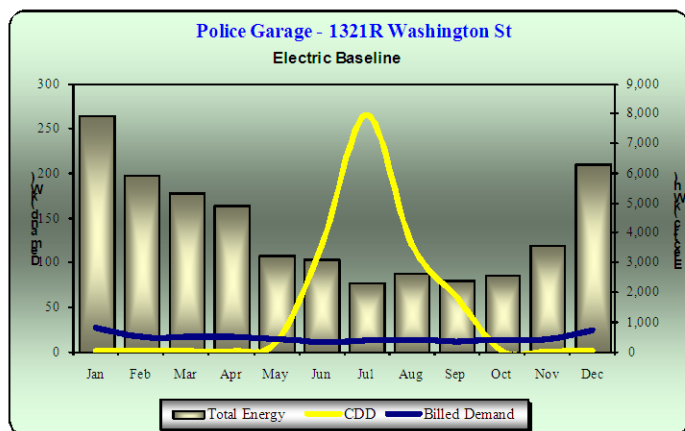
Police Headquarters

BASELINE:			Feb-08	TO	Jan-09											
Month	HDD	CDD	Billed Demand kW	Total Energy kWh	Total Electric Cost \$	Blended Unit Cost \$/kWh	Natural Gas Therms	Natural Gas Cost \$	Natural Gas \$/Therm	Total Monthly MMBTU	Total Fuel Cost \$	Fuel Unit Cost \$/MMBTU	Water/ Sewer HCF	Total Water/ Sewer Cost \$	Annual Water/ Sewer Unit Cost HCF	Total Utility Cost \$
Jan	1,322	0	72.0	41,904	\$6,507	\$0.1553	1,101	\$1,844	\$1.67	110	\$1,844	\$16.75	0	\$0	\$0.00	\$8,351
Feb	1,061	0	91.0	46,428	\$6,907	\$0.1488	729	\$1,244	\$1.71	73	\$1,244	\$17.07	71	\$796	\$11.22	\$8,948
Mar	891	0	80.0	37,140	\$5,638	\$0.1518	1,205	\$2,040	\$1.69	121	\$2,040	\$16.93	0	\$0	\$0.00	\$7,678
Apr	489	0	85.0	37,992	\$5,815	\$0.1531	831	\$1,417	\$1.71	83	\$1,417	\$17.05	0	\$0	\$0.00	\$7,233
May	304	10	70.0	34,248	\$5,143	\$0.1502	618	\$1,060	\$1.71	62	\$1,060	\$17.15	55	\$615	\$11.19	\$6,818
Jun	33	118	81.0	42,768	\$6,673	\$0.1560	385	\$673	\$1.75	39	\$673	\$17.47	0	\$0	\$0.00	\$7,346
Jul	0	265	83.0	45,864	\$7,422	\$0.1618	119	\$249	\$2.09	12	\$249	\$20.90	0	\$0	\$0.00	\$7,671
Aug	13	120	79.0	39,072	\$8,106	\$0.2075	22	\$79	\$3.59	2	\$79	\$35.86	39	\$451	\$11.56	\$8,636
Sep	128	60	76.0	42,912	\$8,389	\$0.1955	153	\$300	\$1.96	15	\$300	\$19.62	0	\$0	\$0.00	\$8,690
Oct	473	0	81.0	42,756	\$7,783	\$0.1820	278	\$503	\$1.81	28	\$503	\$18.11	0	\$0	\$0.00	\$8,286
Nov	722	0	85.0	36,636	\$5,766	\$0.1574	525	\$888	\$1.69	53	\$888	\$16.91	55	\$655	\$11.91	\$7,309
Dec	911	0	85.0	37,848	\$6,133	\$0.1620	1,150	\$1,924	\$1.67	115	\$1,924	\$16.73	0	\$0	\$0.00	\$8,057
Jan	6,347	573	968.0	485,568	\$80,284	\$0.1653	7,116	\$12,221	\$1.72	712	\$12,221	\$230.55	220	\$2,517	\$11.44	\$95,022
				16.2						33.1						\$3.17
				kWh/Sqft					Mbtu/Sqft					\$/Sqft		
									5.2							
									Btu/Sqft/HDD							



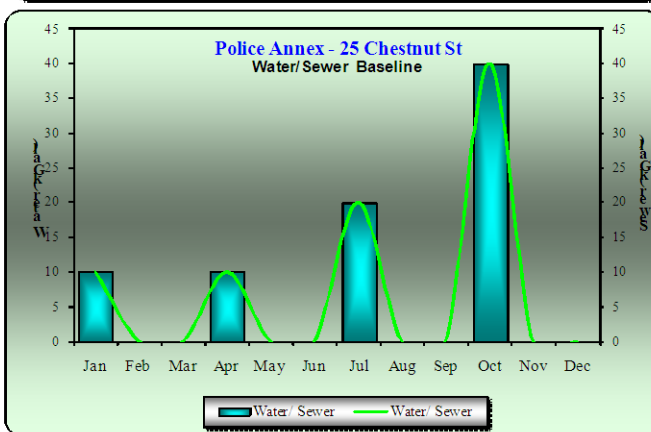
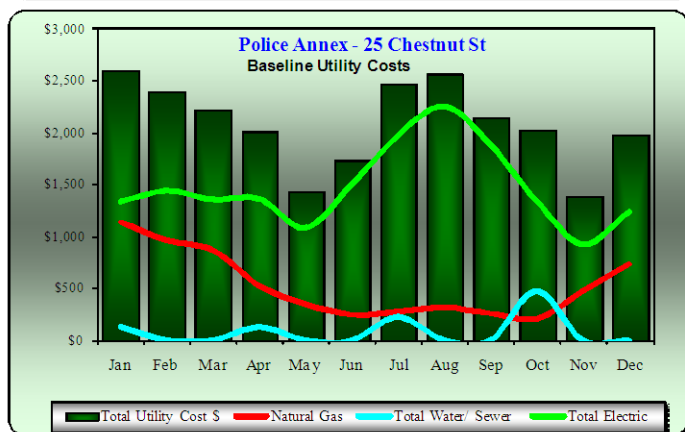
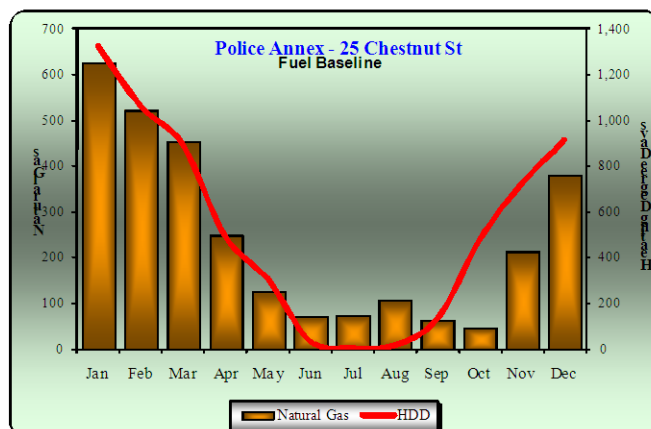
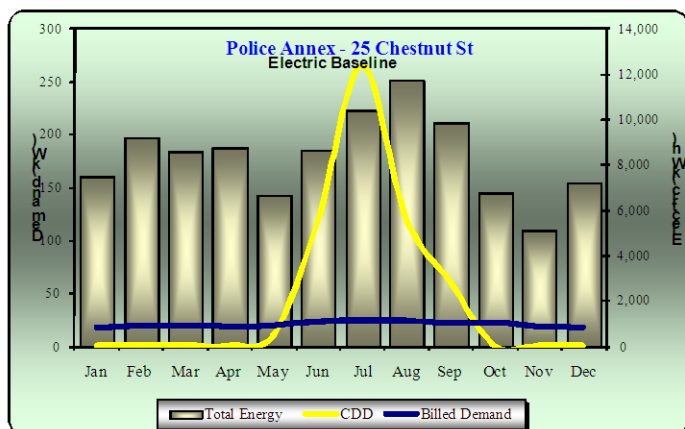
Police Garage

BASELINE:			Feb-08	TO	Jan-09												
Month	HDD	CDD	Billed Demand	Total Energy	Total Electric	Blended Unit Cost	Natural Gas	Natural Gas	Natural Gas	Total Monthly	Total Fuel Cost	Fuel Unit Cost \$/MMBTU	Water/ Sewer	Total Water/ Sewer	Annual Water/ Sewer Unit Cost	Total Utility Cost \$	
			kW	kWh	Cost \$	\$/kWh	Therms	Cost \$	\$/Therm	MMBTU	\$	MMBTU	HCF	Cost \$	HCF		
Jan	1,322	0	26.3	7,947	\$1,527	\$0.1922	1,431	\$2,383	\$1.67	143	\$2,383	\$16.65	0	\$0	\$0.00	\$3,910	
Feb	1,061	0	15.6	5,942	\$938	\$0.1578	1,365	\$2,299	\$1.68	137	\$2,299	\$16.84	11	\$140	\$12.73	\$3,376	
Mar	891	0	15.2	5,321	\$846	\$0.1589	1,506	\$2,536	\$1.68	151	\$2,536	\$16.84	0	\$0	\$0.00	\$3,382	
Apr	489	0	15.5	4,930	\$794	\$0.1611	903	\$1,536	\$1.70	90	\$1,536	\$17.01	0	\$0	\$0.00	\$2,330	
May	304	10	13.3	3,226	\$527	\$0.1633	552	\$952	\$1.72	55	\$952	\$17.24	11	\$140	\$12.73	\$1,618	
Jun	33	118	9.8	3,095	\$480	\$0.1549	185	\$350	\$1.89	19	\$350	\$18.93	0	\$0	\$0.00	\$830	
Jul	0	265	11.0	2,316	\$421	\$0.1817	112	\$232	\$2.08	11	\$232	\$20.75	0	\$0	\$0.00	\$653	
Aug	13	120	12.0	2,655	\$519	\$0.1954	83	\$182	\$2.20	8	\$182	\$21.96	8	\$115	\$14.35	\$816	
Sep	128	60	10.7	2,418	\$447	\$0.1849	125	\$255	\$2.04	13	\$255	\$20.40	0	\$0	\$0.00	\$702	
Oct	473	0	11.7	2,548	\$473	\$0.1855	280	\$502	\$1.79	28	\$502	\$17.92	0	\$0	\$0.00	\$974	
Nov	722	0	12.9	3,590	\$626	\$0.1744	457	\$776	\$1.70	46	\$776	\$16.97	9	\$127	\$14.13	\$1,529	
Dec	911	0	23.5	6,293	\$1,173	\$0.1864	1,078	\$1,812	\$1.68	108	\$1,812	\$16.81	0	\$0	\$0.00	\$2,985	
Jan	6,347	573	177.5	50,281	\$8,770	\$0.1744	8,077	\$13,814	\$1.71	808	\$13,814	\$218.32	39	\$522	\$13.38	\$23,106	
					6.7											\$3.06	
					kWh/Sqft											\$/Sqft	
										149.4							
										23.5							
					Btu/Sqft/HDD												



Police Annex

BASELINE:	Feb-08	TO	Jan-09															
Month	HDD	CDD	Billed Demand	Total Energy	Total Electric	Blended Unit Cost	Natural Gas	Natural Gas	Natural Gas	Total Monthly	Total Fuel Cost	Fuel Unit Cost \$/MMBTU	Water/ Sewer	Total Water/ Sewer	Annual Water Unit Cost	Total Utility Cost \$		
			kW	kWh	Cost \$	\$/kWh	Therms	Cost \$	\$/Therm	MMBTU	\$	MMBTU	HCF	Cost \$	HCF			
Jan	1,322	0	17.2	7,480	\$1,337	\$0.1787	627	\$1,127	\$1.80	63	\$1,127	\$17.98	10	\$137	\$13.71	\$2,601		
Feb	1,061	0	19.2	9,200	\$1,439	\$0.1565	521	\$956	\$1.84	52	\$956	\$18.36	0	\$0	\$0.00	\$2,396		
Mar	891	0	19.2	8,600	\$1,355	\$0.1576	453	\$859	\$1.90	45	\$859	\$18.97	0	\$0	\$0.00	\$2,214		
Apr	489	0	18.0	8,760	\$1,363	\$0.1556	248	\$520	\$2.10	25	\$520	\$20.96	10	\$131	\$13.07	\$2,014		
May	304	10	19.2	6,680	\$1,085	\$0.1624	127	\$344	\$2.71	13	\$344	\$27.10	0	\$0	\$0.00	\$1,429		
Jun	33	118	22.8	8,640	\$1,499	\$0.1736	70	\$241	\$3.44	7	\$241	\$34.40	0	\$0	\$0.00	\$1,740		
Jul	0	265	24.0	10,440	\$1,973	\$0.1890	73	\$269	\$3.68	7	\$269	\$36.84	20	\$226	\$11.30	\$2,468		
Aug	13	120	24.0	11,720	\$2,253	\$0.1922	108	\$309	\$2.86	11	\$309	\$28.65	0	\$0	\$0.00	\$2,563		
Sep	128	60	21.2	9,840	\$1,886	\$0.1917	63	\$253	\$4.02	6	\$253	\$40.22	0	\$0	\$0.00	\$2,139		
Oct	473	0	22.0	6,800	\$1,340	\$0.1971	46	\$203	\$4.42	5	\$203	\$44.21	40	\$476	\$11.89	\$2,020		
Nov	722	0	18.0	5,120	\$925	\$0.1807	213	\$465	\$2.18	21	\$465	\$21.83	0	\$0	\$0.00	\$1,390		
Dec	911	0	17.2	7,200	\$1,239	\$0.1720	380	\$731	\$1.92	38	\$731	\$19.24	0	\$0	\$0.00	\$1,970		
	6,347	573	242.0	100,480	\$17,695	\$0.1761	2,929	\$6,279	\$2.14	293	\$6,279	\$328.75	80	\$970	\$12.12	\$24,943		
				18.4						74.8							\$4.56	
				kWh/Sqft						Mbtu/Sqft								
										11.8								
										Btu/Sqft/HDD								



A.2 ENERGY AND WATER COSTS

Utility Rate Table

(Values include 3.0% year 1 escalation rate)

Building	Demand \$/kW	Electricity \$/kWh	Natural Gas \$ / Therm	Wtr & Swr \$ / KGal
Bigelow Middle School	\$15.848	\$0.1376	\$1.720	\$22.115
Brown Middle School	\$15.598	\$0.1380	\$1.720	\$22.115
Oak Hill Middle School	\$20.458	\$0.1203	\$1.720	\$22.115
Education Center	--	\$0.1882	\$1.720	\$22.115
City Hall	--	\$0.1928	\$1.720	\$22.115
Police Headquarters	--	\$0.1703	\$1.720	\$22.115
Police Garage	\$15.576	\$0.1086	\$1.720	\$15.367
Police Annex	\$22.996	\$0.1133	\$1.720	\$18.438
Schools City Wide	\$17.301	\$0.1460	\$1.720	\$22.115
City Buildings City Wide	\$19.286	\$0.1462	\$1.720	\$19.509

A.3 DESCRIPTION OF BUILDINGS

Building	Building Type	Total Sq.Ft.	Street Address	Year Built	Type of Heating System	Type of Cooling System	Type of Lighting	Typical Occupancy Schedule
School Buildings								
Bigelow Middle School	Middle School	92,500	42 Vernon Street	1967	Hot water via Steam Boiler	Some window A/C Units	T8 w/ some incandescent	7 a – 9 p, M - F 9 a – 3 p, Sa - Su
Brown Middle School	Middle School	146,000	125 Meadowbrook Road	1956, 1962, 1982, 1997	Steam	Some window A/C Units	T8 w/ some incandescent	7 a – 9 p, M - F 9 a – 3 p, Sa - Su
Oak Hill Middle School	Middle School	91,000	130 Wheeler Road	1936, 1960, 1997	Hot water	Some window A/C Units	T8 w/ some incandescent	7 a – 4 p, M – F
Education Center	Elementary / Admin	70,000	100 Walnut Street	1928, 1934, 1966	Steam radiators	Some window A/C Units	T8 w/ some incandescent	7 a – 6 p, M – F
City Buildings								
City Hall	Admin	81,000	1000 Comm Ave	1931	Steam radiators	Some window A/C Units	T8 w/ some incandescent	7 a – 9:30 p, M – F
Police Headquarters	Police	30,000	1321 Washington Street	1932	Hot water reheat coils	Rooftop DX	T8 w/ some incandescent	24 hr/day, 365 day/yr
Police Garage	Garage	7,548	1321 Washington Street	1959	Steam unit heaters	None	T8 w/ some incandescent	6 a – 1 p, 7 day/wk (Intermittent)
Police Annex	Police	5,470	25 Chestnut Street	1925	Hot water	Some window A/C Units	T8 w/ some incandescent	8 am – 5 pm, M – F
TOTAL		523,518						

SECTION B

UTILITY INFORMATION

B.1 UTILITY RATE SUMMARY

NO RESCO obtained three years of electric, gas, water, and sewer utility data for the buildings in Phase 2. Electric rates used to calculate energy cost savings are based on the most recent twelve months of data available at the time of this audit from June 2008 to May 2009. For Natural Gas, the City is under contract with Hess Energy for gas supply which runs through October 2011. We use this fixed rate of \$1.3183 per therm and add National Grid's Natural Gas distribution charge. Water and sewer rates are based on the current rates from the City of Newton.

References for Utility Rates

Charge	Source
Electric Demand Electric Energy	Average of most recent 12 months from June 2008 – May 2009.
Natural Gas	Supply: Current contract rate from Hess as of May 2009. Distribution: Current rate from National Grid.
Water	Current incremental City rate as of June 2009
Sewer	Current incremental City rate as of June 2009

Summary of Utility Rates

Building	Electric Demand \$/kW	Electricity \$/kWh	Natural Gas \$/ Therm	Water & Sewer \$/ KGal
Bigelow Middle School	\$15.387	\$0.1336	\$1.670	\$21.471
Brown Middle School	\$15.143	\$0.1340	\$1.670	\$21.471
Oak Hill Middle School	\$19.862	\$0.1168	\$1.670	\$21.471
Education Center		\$0.1827	\$1.670	\$21.471
City Hall		\$0.1871	\$1.670	\$21.471
Police Headquarters		\$0.1653	\$1.670	\$21.471
Police Garage	\$15.122	\$0.1054	\$1.670	\$14.920
Police Annex	\$22.326	\$0.1100	\$1.670	\$17.901
Schools City Wide	\$16.798	\$0.1418	\$1.670	\$21.471
City Buildings City Wide	\$18.724	\$0.1420	\$1.670	\$18.941

(Values include 3.0% year 1 escalation rate)

B.2 ALTERNATE RATE OPTIONS

Not applicable.

B.3 REBATE & SUBSIDY OPPORTUNITIES

NORESCO has extensive experience with utility incentive programs. We will work to obtain any available incentives or rebates from NSTAR and National Grid. The value of the expected rebates has been accounted for in the Cash Flow table shown in the Executive Summary of this report. All incentive monies will be paid directly to the City. NORESKO has conducted a preliminary evaluation of the electric and gas rebates offered by NSTAR and National Grid, respectively. Incentives are available for several of the technologies, summarized below.

Summary of Utility Incentives

ECM Description	Qualified Equipment	Utility	Estimated Incentive
Lighting Improvements	Efficient lamp & ballast systems, high efficiency fixtures	NSTAR	\$41,124
Lighting Controls	Wall- and ceiling-mounted occupancy sensors	NSTAR	\$22,120
Steam Traps	Steam traps	NGRID	\$7,500
Attic Insulation	Attic insulation	NGRID	\$17,244
Energy Management Systems			\$22,335
VFDs and Premium Efficiency Motors	Variable Frequency Drives	NSTAR	\$6,600
TOTALS			\$116,923

We understand that the City is interested in participating in ISO New England's Demand Response and program. This program offers incentives for reducing peak demand when requested by ISO NE during periods of high demand, which typically occur during hot summer weather. NORESKO's proposed energy management system improvements include control points which will allow Newton personnel to disable selected electric equipment during these periods.

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C.2 ENERGY CONSERVATION MEASURES

This section presents the Energy Conservation Measures for the City of Newton Phase 2 buildings.

ECM	Tab
Lighting Improvements	1
Lighting Controls	1
New Lighting in School Auditoriums	1
Water Conservation	2
Steam Trap Improvements	3
Thermostatic Radiator Valves	4
Weatherization & Attic Insulation	5
Control Systems	6
Energy Management Systems	6
Computer Power Management	6
VFDs & PE Motors	7
Wish List	
Energy Conservation thru Behavior Change™	8
Domestic Hot Water Improvements at Bigelow and Oak Hill	9

Brief Descriptions of Energy Conservation Measures

ECM 1a & 1b: Lighting Improvements and Lighting Controls

Although many of the City's lighting systems are already efficient, NORESKO identified significant opportunity for savings associated with the lighting systems. As part of these improvements, NORESKO will:

- Install high-output T5 fluorescent lighting systems in the Oak Hill and Bigelow gymnasiums.
- Install a high efficient T8 lighting system replacing the existing T12 lamps and magnetic ballast as well as first generation T8 lamps and electronic ballast.
- Replace regularly used incandescent fixtures will be retrofitted with new compact fluorescent lamps or replaced with new linear fluorescent fixtures.
- Replace the few remaining fluorescent and incandescent exit signs with new high-efficiency exit signs containing LED lamps.
- Install occupancy controls to turn off lighting in conference rooms, office areas, classrooms, halls and bathrooms.

ECM 1c: Auditorium Lighting Improvements at Brown and Bigelow

The auditoriums at both the Brown and Bigelow Middle Schools have antiquated, inefficient lighting systems and the general lighting levels in both auditoriums are very dim. In fact, because the original overhead lighting system at Brown is inoperable, the City installed wall-mounted lighting systems.

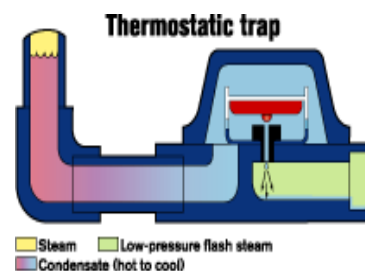
NORESCO will install new energy efficient lighting systems in these spaces to improve lighting levels and increase efficiency. The new systems will be more readily accessible, making lamp and ballast replacements easier for Newton maintenance staff. In addition, NORESKO will paint the ceiling in the Brown auditorium with a white reflective paint to further improve lighting levels. With these lighting improvements, the auditoriums will be much brighter, more attractive venues for events such as theatrical and musical performances.

ECM 2: Domestic Water Conservation

NORESCO found that most of the plumbing fixtures in the Phase 2 buildings are older and use much more water than current low-flow devices. We will retrofit or replace toilets, urinal flushometers, sink aerators, and showerheads in the City and School buildings to reduce water and sewer costs and hot water energy use. As an added benefit, this measure will reduce maintenance costs associated with flushometer repairs for the first few years.

ECM 3: Steam Trap Improvements

Bigelow Middle School, Brown Middle School, the Education Center, and City Hall each have boilers that generate steam to provide for space heating. An integral component of an efficient steam system include steam traps, which remove condensate from the distribution system and return condensate to the boiler plant. However, older steam traps often fail and allow live steam to pass through the trap into the condensate system, wasting significant energy. NORESKO's experience is that without a comprehensive trap maintenance program, a significant number of traps



will not operate properly.

NORESCO will repair or replace faulty steam traps with new, properly functioning components to improve comfort conditions and reduce thermal energy losses. Further, NORESKO will provide a comprehensive steam trap maintenance program that will help ensure energy savings persist and that traps continue to function properly throughout the contract term.

ECM 4: Thermostatic Radiator Valves

NORESCO will install new thermostatic radiator valves (TRVs) at Brown Middle School, the Education Center, and at City Hall to provide occupants with the ability to manually adjust and automatically regulate individual emitter heating output. This ECM will reduce heating energy consumption while significantly improving occupant comfort by allowing for greater space temperature control.



ECM 5: Weatherization & Attic Insulation

NORESCO will install new weather stripping and perimeter seals on the single, double, and overhead doors in the eight Phase 2 buildings. In addition, leaky penetrations such as at the roof/wall joint identified in the scope of work will be sealed. These measures will significantly reduce air infiltration and exfiltration, and transmission and conductive energy losses, reducing heating and cooling consumption while improving occupant comfort by reducing drafts and localized space temperature variations.

Additionally, we found that the attic insulation in City Hall and Oak Hill Middle School is deficient, contributing to excess transmission and conductive heating and cooling energy losses. Installing additional insulation in these attics is a cost effective way to reduce these losses and improve comfort conditions.

ECM 6: EMS Improvements

NORESCO will install new Direct Digital Control (DDC) Energy Management Systems (EMS), retro-commission existing controls, and install programmable thermostats for selected buildings. These improvements will deliver energy savings by implementing efficient control strategies and will provide for improved monitoring and control of building HVAC equipment. Further, the new systems will allow Newton staff the ability to access building systems from a networked communication infrastructure via the internet and standard web browsers.

- Provide new, web-based control and monitoring of selected buildings (“Install New EMS” and “Replace Old EMS”);
- Implement updated energy savings strategies and scheduling of HVAC equipment;
- Provide proper operation and functionality of existing EMS software/hardware and control components;
- During the retro-commissioning process, we will test control equipment to identify deficient or failed control devices. In addition, this ECM includes an allowance for limited repairs of failed or deficient devices.

These improvements will reduce electric, heating, and cooling energy consumption, and provide improved capability for the operating and maintenance staff to monitor, control, operate and maintain HVAC and controls systems.

ECM 7: Variable Frequency Drives & Efficient Motors

NORESCO identified some systems in Newton's buildings that will benefit from variable frequency drive (VFD) installations and premium efficiency (PE) motor upgrades. These upgrades will reduce the energy consumption of the existing systems while improving overall performance. Upon completion, the VFDs, PE Motors, and direct digital controls (DDC) will allow for reduced energy consumption and tighter response to transient zone conditions, effectively providing the served spaces with increased comfort conditions. NORESKO will implement this measure in the following buildings:

- Bigelow Middle School
- Oak Hill Middle School
- Police Headquarters



ECM 8: Energy Conservation through Behavior Change

NORESCO will implement a Awareness-Communication & Sustainability program specifically tailored for the students, faculty, and staff. The program aims are to promote the benefits of the energy efficiency activities, in addition to the proposed improvements within the performance contract project. This holistic approach facilitates interaction with, and increases the effectiveness of, all existing Energy Conservation Measures (ECMs), as well as engaging students and staff in generating additional energy savings on their own. This program promotes a culture of energy efficiency by motivating individuals to voluntarily engage in specific energy conserving behaviors while complementing other existing facility-based conservation activities. With multiple associated benefits, in addition to generating additional energy savings, this ECM enriches the public perception and accelerates the leadership efforts of the City toward responsible environmental action.

ECM 9: Domestic Hot Water Improvements at Bigelow and Oak Hill

During our field surveys, it was brought to NORESKO's attention that there were two schools with leaking domestic water heating (DHW) systems. To remedy these problems, NORESKO will install a new electric DHW boiler and storage tank at the Bigelow Middle School and a new oil-fired DHW boiler and storage tank at the Oak Hill Middle School. These improvements will reduce maintenance costs associated with the DHW tanks and will eliminate the risk of interruption of domestic hot water service at these two middle schools. While there will be some energy savings achieved with the Oak Hill DHW improvements, the equipment at both schools is beginning to fail and has exceeded their useful service lives and should be replaced as soon as possible.

We considered installing a gas- or oil-fired DHW boiler at the Bigelow School. The boiler would be a direct-vent unit with a dedicated vent. However, because the cost of installing the exhaust vent is very high this option is not recommended.

Other Energy Conservation Measures Considered

NORESCO considered several other energy conservation opportunities in addition to those described above.

Plug Load Power Controllers

As is typical of most offices spaces, operation of individual window AC units are only required on a seasonal basis and is only necessary during the hours that each space is occupied. However, there is currently no uniform method in place to ensure automatic shutdown of window AC units. Thus, some of these units continue to operate during periods while the occupants are not present, such as lunch breaks or overnight hours. Controlling these appliances to operate only when the space is occupied will save both electricity and wear and tear on the units. These controllers mount next to the existing outlet and are controlled by an occupancy sensor that will be mounted in the space. However, because the AC units typically only operate during the summer months and do not use much energy, the savings are small compared to the cost and this measure is not included in the project.



As an alternate approach, Newton could purchase the devices on their own and use in-house staff to install the plug load controllers. With this approach the incremental cost would be limited to the materials only. These devices are relatively simple to install and we expect City maintenance staff could install them with a modest amount of training.

New Windows at the Police Annex

The windows at the older Police Annex building are single-pane and leaky. Replacing these windows with modern double-pane units would reduce conduction and infiltration losses and save heating costs. However, the payback for these improvements is very high because the savings are small compared to the installed cost, and the overall program savings would not support the investment. Further, as the Police Annex is one of the older and more attractive City buildings within the City, based on NORESO's experience we expect that the building would be considered historic. A window replacement project would most likely require custom historic windows, which would further increase the project cost.



Police Annex

Electric Heat Alternatives at Oak Hill

During the audit, NORESO was asked to evaluate supplemental heating alternatives for some built-out office spaces in the Oak Hill Middle School. These four individual but adjacent spaces are currently served by a ceiling-hung corridor unit ventilator with only a single space thermostat. After discussions with school facility personnel and a careful review of the existing HVAC, piping, and ductwork drawings for the immediate vicinity, we concluded that the most cost effective solution for the un-zoned and under-heated spaces was to install individual electric resistance heaters with local controls. As this is not an

energy savings measure, NORESO does not recommend this work be included under the scope of this project.

Miscellaneous Envelope Improvements and Upgrades

During the audit, NORESO investigated a variety of weatherization and building envelope energy saving measures. In addition to the door weather stripping and attic insulation measures, there are other long payback improvements that would reduce energy consumption or help address capital issues. However, these improvements are not supported by the program savings. Brief descriptions of these measures are listed below:



- Bigelow Middle School – Replace gymnasium skylights/windows with double pane units
- Education Center – Install sheetrock ceilings in annex buildings (incomplete air-barrier)
- Education Center – Replace exterior doors in annex buildings
- City Hall – Install interior storm windows or window weather stripping
- City Hall – Install door to separate attic space from conditioned space (attic over gathering room in center of building)
- Police Garage – Replace missing and broken glass blocks
- Police Garage – Replace windows with double pane units
- Police Garage – Replace roll-up doors with thermal overhead doors

Exhaust Fan Repairs at City Hall

The existing attic exhaust fans and fan coil units in Newton City Hall have been abandoned in place for some time. The removal and replacement of the existing equipment would not save energy, as the new equipment would consume energy that is not presently being expended. Furthermore, the existing electrical and mechanical systems are antiquated and repairs and replacements would require significant capital investment. NORESO would recommend conducting a design study of the existing HVAC systems prior to developing a proposal to replace these systems.



City Hall

As the overall program savings would not support the very high cost and negative savings for these improvements, NORESO does not recommend including this project under the performance contract.

LIGHTING SYSTEM IMPROVEMENTS

Overview

NORESCO has conducted an investigation of the eight facilities and found that, although many have energy efficient T8 lighting systems already installed, there is still significant opportunity for further improvements. NORESOCO proposes control the existing lighting fixtures with occupancy sensors, thereby minimizing unnecessary usage.



Detailed Description

Existing System

Bigelow Middle School

The existing luminaires in the Bigelow Middle School consist primarily of fluorescent fixtures with T8 32-watt lamps and electronic ballasts. The most common fluorescent fixture types are recessed 2'x4', recessed 2'x2', wraparound, and HID fixtures.

Brown Middle School

The existing luminaires in the Brown Middle School consist primarily of fluorescent fixtures with T8 32-watt lamps and electronic ballasts. The most common fluorescent fixture types are recessed 2'x4', recessed 2'x2', wraparound, and industrial fixtures.

Oak Hill Middle School

The existing luminaires in the Oak Hill Middle School consist primarily of fluorescent fixtures with T8 32-watt lamps and electronic ballasts. The most common fluorescent fixture types are recessed 2'x4', recessed 2'x2', wraparound, strip, and HID fixtures.

Education Center

The existing luminaires in the Education Center consist primarily of fluorescent fixtures with T8 32-watt lamps and electronic ballasts. The most common fluorescent fixture types are recessed 2'x4', recessed 2'x2', recessed 1'x4', and wraparounds.

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City Hall

The existing luminaires at the City Hall are energy saving T8 electronic and T12 electromagnetic with some incandescent lamps. The most common fixture types are recessed 2'x4', recessed 2'x2' and wraparound style fixtures.

Police Headquarters

The existing luminaires in the Police Headquarters consist primarily of fluorescent fixtures with T8 32-watt lamps and electronic ballasts. The most common fluorescent fixture types are recessed 2'x4', recessed 2'x2', strips, and wraparounds.

Police Garage

The existing luminaires in the Police Garage consist primarily of fluorescent fixtures with T8 32-watt lamps and electronic ballasts. The most common fluorescent fixture types are recessed 2'x4', recessed 1'x4', strips, and wraparounds.

Police Annex

The existing luminaires in the Police Annex consist primarily of fluorescent fixtures with T8 32-watt lamps and electronic ballasts. The most common fluorescent fixture types are recessed 2'x4', recessed 2'x2', strips, and wraparounds.

Although the existing lighting systems have undergone retrofits over the last few years, but there are still significant opportunities for improvement. The existing lighting systems are controlled individually, and through use of some occupancy sensor controllers in limited areas will further reduce energy consumption.

Recommended Improvements

In order to maximize the overall electric savings at these eight facilities, NORESKO recommends optimizing the existing light systems. This will be accomplished through new occupancy-based controls.

Energy savings that can be achieved by installing occupancy sensor are directly related to the activities in the space. In areas where activities are sporadic and lights are left on, installing sensors will automatically shut the lights off.

Scope of Work

NORESCO will retrofit existing lighting systems with high-efficiency lighting systems throughout the eight buildings. Further, we will improve the lighting in the auditoriums at the Brown and Bigelow Middle Schools as described below.

Auditorium Lighting Improvements at Brown and Bigelow

The auditoriums at both the Brown and Bigelow Middle Schools have antiquated, inefficient lighting systems and the general lighting levels in both auditoriums are very dim. Facility personnel indicated that if the lighting systems were improved and spaces were brighter, local organizations may be more interested in leasing the spaces, which may increase revenue to the City. NORESKO recommends installing new energy efficient lighting systems in these spaces to

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improve lighting levels and increase efficiency. Although the installed lighting systems will be more efficient than the existing systems, this measure will increase energy use primarily because the existing systems are dim and/or underutilized.

The Brown Middle School auditorium currently has 8' 4-lamp wrap style fixtures mounted on the left and right side walls. Although efficient, these fixtures do not throw out enough light to the middle of the room and also produce a large amount of glare. The overhead house lights have been abandoned in place for at least 13 years and do not have any electrical power. NORESO proposes to install high-efficiency T5 indirect fixture on both right and left side walls as well as the rear wall. The fixtures will replace the existing 8' wraps and will be mounted at the same height. As part of the retrofit NORESO will also paint the ceiling with a highly reflective white paint. This combination will eliminate the glare and improve light levels throughout the room.

The Bigelow Middle School auditorium currently has recessed can fixtures with a 75-watt incandescent flood lamps. This lamp does not throw enough light into the space; NORESO measured lighting levels of only 3-5 foot-candles. NORESO will replace the existing can fixtures one-for-one with new recessed cans equipped with high-output 42-watt dimmable compact fluorescent lamps. The new lamps will be significantly brighter than the existing incandescent lamps. The existing dimmers will be replaced with a slide dimmer and the current on/off controls will remain.

Lighting System Improvements

The following is a brief description of the work to be undertaken at these eight facilities.

- Bigelow Middle School
 - o (167) New Fixtures
 - o (522) Re-lamp / Re-ballast
 - o (40) Retrofit Kits
 - o (65) Screw-in Compact Fluorescents
 - o (66) Recessed Compact Kits
 - o (108) No Retrofits
- Brown Middle School
 - o (130) New Fixtures
 - o (630) Re-lamp / Re-ballast
 - o (124) Retrofit Kits
 - o (35) Screw-in Compact Fluorescents
 - o (419) No Retrofits
- Oak Hill Middle School
 - o (58) New Fixtures
 - o (728) Re-lamp / Re-ballast
 - o (25) Recessed Compact Kits
 - o (162) No Retrofits

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- Education Center
 - o (88) New Fixtures
 - o (639) Re-lamp / Re-ballast
 - o (11) Retrofit Kits
 - o (34) Screw-in Compact Fluorescents
 - o (115) No Retrofits
- City Hall
 - o (195) New Fixtures
 - o (351) Re-lamp / Re-ballast
 - o (78) Retrofit Kits
 - o (68) Screw-in Compact Fluorescents
 - o (439) No Retrofits
- Police Headquarters
 - o (65) New Fixtures
 - o (164) Re-lamp / Re-ballast
 - o (1) Screw-in Compact Fluorescent
 - o (112) No Retrofits
- Police Garage
 - o (3) New Fixtures
 - o (55) Re-lamp / Re-ballast
 - o (4) Screw-in Compact Fluorescents
 - o (3) No Retrofits
- Police Annex
 - o (54) New Fixtures
 - o (28) Re-lamp / Re-ballast
 - o (3) Retrofit Kits
 - o (2) Screw-in Compact Fluorescents
 - o (10) No Retrofits

Occupancy Sensors

- The existing classrooms, halls, offices, bathrooms, and gymnasium are all areas where occupancy patterns change. Even though the existing lighting fixtures are energy efficient, occupants do not consistently turn the lights off when leaving the space. Data loggers are used to determine the occupancy pattern or the amount of time lights are left on with the space empty. During the detailed audit NORESO installed data loggers throughout the buildings in order to log the occupancy rate as well as the total hours that lights are left on (see attachment A, "Occupancy Logger Data"). Logger data documents the time or wasted time lights are left on with the space empty.

- NORESKO recommends installing two types of sensor styles, a switch-mounted sensor or a wall/ceiling-mounted sensor. Both types of sensors operate with the same ultrasonic, infrared, or “dual technology” sensors. Dual technology devices detect motion using ultrasonic sensors and heat signatures using infrared sensors which reduce the possibility of the lights shutting off with occupants in the space.
- Switch-mounted sensors will be utilized in smaller spaces such as offices and small classrooms. Switch sensors replace the existing light switch recessed in the wall and have a manual on/off switch built in.
- Ceiling or Wall sensors will be installed remotely in the ceiling or mounted tight to the ceiling in a corner of the room. Existing light switches will remain and operate as they do now. A power pack or packs are installed in a junction box above the ceiling and shielded low voltage cables connect to the sensor.

Interface with Existing Systems and Operations

Impact on Facility Operations and Performance

The facility will benefit from reduced energy consumption and improved lighting conditions.

Maintenance

Maintenance costs associated with replacement of failed lamps and ballasts will be reduced during the first few years of the contract. NORESKO expects maintenance practices for the installed equipment to be comparable to or less than current systems.

Customer Training

NORESKO will provide O&M manuals for the installed equipment.

Equipment Information

Manufacturer and Type

The proposed lighting equipment will be manufactured by one of the following corporations:

Lamps:

- **Phillips Lighting Co.**, 200 Franklin Square Dr., Somerset, NJ, 08875, (908) 563-3000.
- **Osram-Sylvania Inc.**, 100 Endicott St., Danvers, MA, 01923, (800) 544-4828.
- **General Electric Co.**, 3135 Easton Turnpike, Fairfield, CT, 06828-0001, (941) 418-5070.

Ballasts:

- **Advance Transformer Co.**, 10275 West Higgins, Rosemont, IL, 60018, (708) 390-5109
- **Howard Industries**, PO BOX 1590, Laurel, MS, 39441, (800) 956-3456.
- **General Electric Co.**, 3135 Easton Turnpike, Fairfield, CT, 06828-0001, (941) 418-5070.
- **Osram-Sylvania Inc.**, 100 Endicott St., Danvers, MA, 01923, (800) 544-4828.

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- **Universal Lighting Prod. Gr.**, 26 Century Blvd., Nashville, TN, 1 (800) BALLAST

Luminaires:

- **Renova Lighting**, 15 Wellstown Road, Ashway, RI, 02804, (800) 635-6682.
- **Lithonia Hi-Tek**, PO Box 72, Crawfordsville, IN, 47933, (317) 362-1837.
- **Simkar Corp.**, 700 Ramona Ave., Philadelphia, PA, 19120-4691, (215) 831-7700.
- **Thomas Lighting (Daybrite)**, Commercial & Industrial Div., 1015 S. Green St., Tupelo, MS, 38802, (601) 842-7212.
- **Crescent Lighting**, 120 East Gloucester Pike, Barrington, NJ, 08007, (609) 546-5000.

Reflectors:

- **Energy Planning Associates**, 148 Maritime Drive, Sanford, FL, 32771 (407) 302-0001.
- **Reflect-A-Light**, U.S. 17 North, Route 6, Box 800, Palatka, FL, 32177, (904)-328-1580.

Sensors:

- **Hubbell**, 185 Plains Road, Milford, CT 06460-2420, (203) 882-4800
- **The Watt Stopper**, 2800 De La Cruz Blvd., Santa Clara, CA 95050, (408)-988-5331
- **Sensor Switch**, 10 Capital Drive, Wallingford, CT 06492, (203) 265-2842

Material Specifications

Low Mercury T8 Lamps: The new, medium bi-pin T8 lamps will be 4100k with 20,000 hours of average rated life and a Color Rendering Index of 85.

Ballasts: The UL, CBM and CSA certified lighting ballasts will be instant-start electronic ballasts with a total harmonic distortion rating of less than 20%.

Compact Fluorescent Lamps: These UL and CSA certified lamps utilize high quality phosphors for outstanding Color Rendering Index (CRI) from 80 to 85. The lamp temperature ranges from 2,700 degrees Kelvin to 4,100 degrees Kelvin. Average rated life of the lamps is 10,000 hours.

Compact Fluorescent Luminaires: The new UL and CSA certified luminaires utilize heavy gauge post painted steel pans, durable two-pin thermoplastic sockets and socket clips for excellent lamp alignment and photometrics. Luminaires are either surface mount or designed for suspended ceiling or air handling plenums. All ballasts are factory tested.

Fluorescent Lighting Luminaires: The new luminaires will consist of heavy die-formed steel to insure uniformity and dimensional stability with quality rust-resistant high-gloss white enamel paint. The paint is baked on at high temperatures to ensure durability. Luminaires are all approved by UL. Luminaires are constructed with convenient knock-outs for ease of installation in a wide variety of applications that can be mounted using many usual methods. Lenses are constructed of high quality extruded virgin acrylic with excellent UV resistance.

Reflectors: The reflectors are designed to maximize light output for even light distribution, ease of installation, and achieve ballast access without tools. Material form, fit and thickness

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requirements meet UL Standard 1570 requirements. The reflectors will be Aluminum with a powder coat high reflective white finish. New sockets and lamp centering brackets will be included.

Occupancy Sensors: Occupancy sensors will be ceiling or wall mounted and may use ultrasonic, passive infrared technology or both. Turning lights off in unoccupied spaces provides savings by reducing electricity consumption, extending lamp life and reducing maintenance costs. All sensors and related components specified meet UL requirements.

***Lighting System Improvements
I. Savings Calculations***

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
1	4-Education Center	300	CUBICLES	12	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Surface mounted	58	EDO	12	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDO
2	4-Education Center	302	OFFICE	4	2'x2' Recessed Troffer w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast	58	EDP	4	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	EDP
3	4-Education Center	301	COMPUTER LAB	3	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts, Surface Mounted	112	EDCR	3	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDCR
4	4-Education Center	301	COMPUTER LAB	3	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts, Pendent Mounted	112	EDCR	3	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDCR
5	4-Education Center	303/305	CUBICLES	13	2'x2' Recessed Troffer w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast	58	EDO	13	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	EDO
6	4-Education Center	304	OFFICE	3	2'x4' Recessed Troffer w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	EDP	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	EDP
7	4-Education Center	304	OFFICE	2	3' Vanity Fixture w/ (1) F30T12/25w Lamps & (1) Energy Efficient Magnetic Ballast	38	EDP	2	No Retrofit Proposed	38	EDP
8	4-Education Center	306	CUBICLES	5	2'x4' Recessed Troffer w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	EDO	5	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	EDO
9	4-Education Center	307	CAFETERIA	2	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts, Pendent Mounted	112	EDO	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDO
10	4-Education Center	307	CAFETERIA	2	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Pendant Mounted	58	EDO	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDO
11	4-Education Center	S32	STAIRS	2	1'x8' Surface Mounted Box w/ (4) FO32T8 Lamps & (1) Electronic Ballast	112	EDH	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDH
12	4-Education Center	S31	STAIRS	4	1'x8' Surface Mounted Box w/ (4) FO32T8 Lamps & (1) Electronic Ballast	112	EDH	4	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDH
13	4-Education Center	C31	CORRIDOR	4	1'x8' Surface Mounted Box w/ (4) FO32T8 Lamps & (1) Electronic Ballast	112	EDH	4	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDH
14	4-Education Center	C31	CORRIDOR	2	1'x8' Surface Mounted Box w/ (4) FO32T8 Lamps & (1) Electronic Ballast	112	EDH	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDH
15	4-Education Center	C31	CORRIDOR	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
16	4-Education Center	C32	CORRIDOR	18	1'x8' Surface Mounted Box w/ (4) FO32T8 Lamps & (1) Electronic Ballast	112	EDH	18	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDH
17	4-Education Center	C32	CORRIDOR	4	Exit Sign w/ LED	2	X	4	No Retrofit Proposed	2	X
18	4-Education Center	308	CUBICLES	15	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	EDO	15	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	EDO
19	4-Education Center	308	CUBICLES	1	Incandescent Fixture w/ (1) 52w Incandescent Lamp	52	EDO	1	No Retrofit Proposed	52	EDO
20	4-Education Center	310	OFFICE	4	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Butted Fixture	58	EDP	4	Relamp & Reballast w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast, 2x Tandem Wire	84	EDP
21	4-Education Center	310	OFFICE	2	4' Strip Fluorescent w/ (1) FO40T8 Lamp & (1) Electronic Ballasts	35	EDP	2	No Retrofit Proposed	35	EDP
22	4-Education Center	312	OFFICE	2	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	EDP	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDP
23	4-Education Center	312	OFFICE	2	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	EDP	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDP
24	4-Education Center	312	OFFICE	3	Compact Fluorescent Fixture w/ 13w Compact Fluorescent Lamp & Magnetic Ballast	15	EDP	3	No Retrofit Proposed	15	EDP
25	4-Education Center	312	OFFICE	2	Incandescent Fixture w/ (1) 52w Incandescent Lamp	52	EDP	2	No Retrofit Proposed	52	EDP
26	4-Education Center	312A	OFFICE	6	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDP	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDP
27	4-Education Center	310	STORAGE CLOSET	1	Compact Fluorescent Fixture w/ 13w Compact Fluorescent Lamp & Magnetic Ballast	15	EDS	1	No Retrofit Proposed	15	EDS
28	4-Education Center	307A	JANITOR CLOSET	1	4' Wrap Fluorescent w/ (1) F40T12/34w Lamp & (1) Energy Efficient Magnetic Ballast, Wall Mounted	42	EDS	1	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	EDS
29	4-Education Center	309	OFFICE	1	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDP	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDP
30	4-Education Center	309	OFFICE	1	4' Strip Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	EDP	1	No Retrofit Proposed	73	EDP
31	4-Education Center	307B	MENS RESTROOM	2	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Pendant Mounted	58	EDR	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDR
32	4-Education Center	307B	MENS RESTROOM	1	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts, Pendent Mounted	112	EDR	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDR
33	4-Education Center	311	MECHANICAL ROOM	1	Incandescent Bare Socket Fixture w/ (1) 52w Incandescent Lamp	52	EDS	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	EDS

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
34	4-Education Center	314	OFFICE	4	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts, Pendant Mounted	112	EDP	4	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDP
35	4-Education Center	311A	STORAGE	1	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDS
36	4-Education Center	E30	ELEV VESTIBULE	1	1'x4' Pendant Mounted Box w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDH
37	4-Education Center	316A	CONF RM VESTIBULE	1	Compact Fluorescent Square Fixture w/ (2) 13w Compact Fluorescent Lamps & Magnetic Ballast	30	EDH	1	No Retrofit Proposed	30	EDH
38	4-Education Center	316	CONFERENCE RM	4	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts, Pendant Mounted	112	EDM	4	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDM
39	4-Education Center	316	CONFERENCE RM	2	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Pendant Mounted	58	EDM	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDM
40	4-Education Center	318	CONFERENCE RM	15	2'x2' Recessed Troffer w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast	58	EDM	15	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	EDM
41	4-Education Center	313A	WOMENS RESTROOM	4	2'x2' Recessed Troffer w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast	58	EDR	4	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	EDR
42	4-Education Center	313	CUSTODIAL CLOSET	1	Incandescent Fixture w/ (1) 52w Incandescent Lamp	52	EDS	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	EDS
43	4-Education Center	315C	315 HALLWAY	3	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Pendant Mounted	58	EDH	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDH
44	4-Education Center	315A	OFFICE	3	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts, Pendant Mounted	112	EDP	3	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDP
45	4-Education Center	315B	CLASSROOM	3	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Pendant Mounted	58	EDCR	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDCR
46	4-Education Center	315B	CLASSROOM	1	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts, Pendant Mounted	112	EDCR	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDCR
47	4-Education Center	315D	CLASSROOM	3	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Pendant Mounted	58	EDCR	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDCR
48	4-Education Center	315F	CLASSROOM	6	2'x2' Recessed Troffer w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast	58	EDCR	6	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	EDCR
49	4-Education Center	315F	CLASSROOM CORRIDOR	4	2'x2' Recessed Troffer w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast	58	EDH	4	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	EDH
50	4-Education Center	317	OFFICE	3	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts, Pendant Mounted	112	EDP	3	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDP
51	4-Education Center	S33	STAIRS	2	1'x8' Surface Mounted Box w/ (4) FO32T8 Lamps & (1) Electronic Ballast	112	EDH	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDH
52	4-Education Center	315E	STORAGE	2	4' Wrap Fluorescent w/ (2) F40T12/40w Lamps & (1) Energy Efficient Magnetic Ballast	86	EDS	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDS
53	4-Education Center	320	CUBICLES	5	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Pendant Mounted	58	EDO	5	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDO
54	4-Education Center	320	CUBICLES	3	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts, Pendant Mounted	112	EDO	3	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDO
55	4-Education Center	320A	OFFICE	1	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts, Pendant Mounted	112	EDP	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDP
56	4-Education Center	320B	OFFICE	2	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Pendant Mounted	58	EDP	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDP
57	4-Education Center	320B	OFFICE	1	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts, Pendant Mounted	112	EDP	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDP
58	4-Education Center	320C	OFFICE	2	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Pendant Mounted	58	EDP	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDP
59	4-Education Center	S21	STAIRS	3	1'x8' Surface Mounted Box w/ (4) FO32T8 Lamps & (1) Electronic Ballast	112	EDH	3	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDH
60	4-Education Center	S21	STAIRS	1	1'x4' Surface Mounted Box w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDH
61	4-Education Center	S21	STAIRS	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
62	4-Education Center	200	OFFICE	5	2'x2' Recessed Troffer w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast	58	EDP	5	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	EDP
63	4-Education Center	200A	OFFICE	1	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	EDP	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDP
64	4-Education Center	200A	OFFICE	2	8' Wrap Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	EDP	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDP

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
65	4-Education Center	200C	OFFICE	4	4' Industrial Hood w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDP	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDP
66	4-Education Center	200C	OFFICE	3	Incandescent Fixture w/ (1) 52w Incandescent Lamp	52	EDP	3	No Retrofit Proposed	52	EDP
67	4-Education Center	202	OFFICE	3	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDP	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDP
68	4-Education Center	202	OFFICE	3	Incandescent Fixture w/ (1) 52w Incandescent Lamp	52	EDP	3	No Retrofit Proposed	52	EDP
69	4-Education Center	201	CUBICLES	6	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts, Pendant Mounted	112	EDO	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDO
70	4-Education Center	203	OFFICE	3	2'x2' Recessed Troffer w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast	58	EDP	3	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	EDP
71	4-Education Center	203	OFFICE	1	Incandescent Recessed Fixture w/ (1) 52w Incandescent Lamp	52	EDP	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	EDP
72	4-Education Center	C21	CORRIDOR	4	1'x8' Surface Mounted Box w/ (4) FO32T8 Lamps & (1) Electronic Ballast	112	EDH	4	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDH
73	4-Education Center	C21	CORRIDOR	2	1'x8' Pendant Mounted Box w/ (4) FO32T8 Lamps & (1) Electronic Ballast	112	EDH	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDH
74	4-Education Center	C21	CORRIDOR	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
75	4-Education Center	C21	CORRIDOR	1	Exit Sign w/ (2) 15 Watt Incandescent Lamps w/ Attached Emergency Light	30	X	1	New LED Exit Sign	2	X
76	4-Education Center	205A	MAIL ROOM	1	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts, Pendant Mounted	112	EDO	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDO
77	4-Education Center	205B	MAIL ROOM VESTIBULE	1	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Pendant Mounted	58	EDH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDH
78	4-Education Center	205	OFFICE	4	2'x2' Recessed Troffer w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast	58	EDP	4	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	EDP
79	4-Education Center	204	CUBICLES	2	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	EDO	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDO
80	4-Education Center	204	CUBICLES	4	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDO	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDO
81	4-Education Center	206	CONFERENCE RM	2	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	EDM	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDM
82	4-Education Center	206	CONFERENCE RM	4	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDM	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDM
83	4-Education Center	209	?	2	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts, Pendant Mounted	112	EDP	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDP
84	4-Education Center	209	?	2	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Pendant Mounted	58	EDP	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDP
85	4-Education Center	S22	STAIRS	1	1'x8' Surface Mounted Box w/ (4) FO32T8 Lamps & (1) Electronic Ballast	112	EDH	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDH
86	4-Education Center	S22	STAIRS	1	1'x4' Surface Mounted Box w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDH
87	4-Education Center	S22	STAIRS	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
88	4-Education Center	C22	CORRIDOR	4	Exit Sign w/ LED	2	X	4	No Retrofit Proposed	2	X
89	4-Education Center	C22	CORRIDOR	18	1'x8' Surface Mounted Box w/ (4) FO32T8 Lamps & (1) Electronic Ballast	112	EDH	18	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDH
90	4-Education Center	209A	JANITOR CLOSET	1	Incandescent Bare Socket Fixture w/ (1) 52w Incandescent Lamp	52	EDS	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	EDS
91	4-Education Center	208	LOBBY AREA	4	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDH	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDH
92	4-Education Center	208A	LOBBY AREA	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDH	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDH
93	4-Education Center	208B	BOOK STORAGE	1	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDS
94	4-Education Center	208	CUBICLE	1	3' Vanity Fixture w/ (1) F30T12/25w Lamps & (1) Energy Efficient Magnetic Ballast	38	EDO	1	Relamp & Reballast w/ (1) F25T8 Lamps & (1) 1/25 Elec. Low-Power High Efficiency Ballast	21	EDO
95	4-Education Center	210A	SECURITY ROOM	1	Incandescent Ceiling Fan Fixture w/ (1) 52w Incandescent Lamp	52	EDP	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	EDP
96	4-Education Center	210	CONFERENCE RM	8	8' Uplight/Downlight Fluorescent w/ (4) FO32T8 Lamps & (1) Electronic Ballast	112	EDM	8	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDM
97	4-Education Center	211A	MENS RESTROOM	1	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDR	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDR
98	4-Education Center	211A	MENS RESTROOM	1	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	EDR	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDR

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
99	4-Education Center	211B	ROOM 211 VESTIBULE	1	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDH
100	4-Education Center	211	AUDIO ROOM	1	Incandescent Bare Lamp Fixture w/ (1) 75w Incandescent Lamp	75	EDS	1	Relamp w/ (1) 19 watt Compact Fluorescent Screw-In	19	EDS
101	4-Education Center	A20	CUBICLES	5	Exit Sign w/ LED	2	X	5	No Retrofit Proposed	2	X
102	4-Education Center	A21	STAGE	2	8' Wrap Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	EDS	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDS
103	4-Education Center	A21	STAGE	1	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast, Pendant Mounted	73	EDS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDS
104	4-Education Center	A20	CUBICLES	49	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	EDO	49	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	EDO
105	4-Education Center	A20	CUBICLES	27	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDO	27	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDO
106	4-Education Center	A20	CUBICLES	40	3' Vanity Fixture w/ (1) F25T8 Lamp & (1) Electronic Ballast	24	EDO	40	No Retrofit Proposed	24	EDO
107	4-Education Center	A22	STORAGE	1	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	EDS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDS
108	4-Education Center	A24	STORAGE	1	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	EDS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDS
109	4-Education Center	A25	STAIRS	2	4' Wrap Fluorescent w/ (1) F32T8 Lamp & (1) Electronic Ballast, Wall Mounted	32	EDH	2	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	EDH
110	4-Education Center	A23	A20 VESTIBULE	1	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDH
111	4-Education Center	E20	ELEV VESTIBULE	1	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDH
112	4-Education Center	212A	STORAGE VAULT	1	Compact Fluorescent Keyless Fixture w/ 15w Compact Fluorescent Lamp & Magnetic Ballast	17	EDS	1	No Retrofit Proposed	17	EDS
113	4-Education Center	212	LOBBY & OFFICE	5	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Pendant Mounted	58	EDH	5	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDH
114	4-Education Center	212B	OFFICE	7	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Pendant Mounted	58	EDO	7	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDO
115	4-Education Center	212C	HALLWAY	2	Incandescent Recessed Fixture w/ (1) 52w Incandescent Lamp	52	EDH	2	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	EDH
116	4-Education Center	214	OFFICES	3	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast, Pendant Mounted	73	EDP	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDP
117	4-Education Center	214	OFFICES	4	8' Wrap Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	EDP	4	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDP
118	4-Education Center	214A	OFFICE	2	8' Wrap Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	EDP	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDP
119	4-Education Center	214A	OFFICE	2	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast, Pendant Mounted	73	EDP	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDP
120	4-Education Center	212D	STORAGE CLOSET	1	Compact Fluorescent Drum Fixture w/ (2) 13w Compact Fluorescent Lamp & Magnetic Ballast	30	EDS	1	No Retrofit Proposed	30	EDS
121	4-Education Center	215D	WOMENS RESTROOM	3	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDR	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDR
122	4-Education Center	215C	JANITOR CLOSET	1	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast, Wall Mounted	73	EDS	1	No Retrofit Proposed	73	EDS
123	4-Education Center	216	CUSTODIAL CLOSET	2	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Pendant Mounted	58	EDS	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDS
124	4-Education Center	215	OFFICES	3	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts, Pendant Mounted	112	EDP	3	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDP
125	4-Education Center	215A	OFFICE	1	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts, Pendant Mounted	112	EDP	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDP
126	4-Education Center	215B	OFFICE	4	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Pendant Mounted	58	EDP	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDP
127	4-Education Center	217	CUBICLES	5	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Pendant Mounted	58	EDO	5	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDO
128	4-Education Center	218	LOBBY AREA	4	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts, Pendant Mounted	112	EDH	4	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDH
129	4-Education Center	218	LOBBY AREA	2	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Pendant Mounted	58	EDH	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDH
130	4-Education Center	218C	OFFICE	1	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Pendant Mounted	58	EDP	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDP

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
131	4-Education Center	218C	OFFICE	1	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts, Pendant Mounted	112	EDP	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDP
132	4-Education Center	218B	OFFICE	2	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts, Pendant Mounted	112	EDP	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDP
133	4-Education Center	218B	OFFICE	2	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Pendant Mounted	58	EDP	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDP
134	4-Education Center	218A	OFFICE	2	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts, Pendant Mounted	112	EDP	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDP
135	4-Education Center	219	OFFICES	5	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts, Pendant Mounted	112	EDP	5	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDP
136	4-Education Center	219A	OFFICE	3	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Pendant Mounted	58	EDP	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDP
137	4-Education Center	219B	OFFICE	2	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Pendant Mounted	58	EDP	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDP
138	4-Education Center	S23	STAIRS	2	1'x8' Surface Mounted Box w/ (4) FO32T8 Lamps & (1) Electronic Ballast	112	EDH	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDH
139	4-Education Center	S23	STAIRS	1	1'x4' Surface Mounted Box w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDH
140	4-Education Center	S23	STAIRS	2	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Wall Mounted	58	EDH	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDH
141	4-Education Center	S23	STAIRS	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
142	4-Education Center	S23A	ENTRANCE VESTIBULE	1	1'x4' Surface Mounted Box w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDH
143	4-Education Center	124	CLASSROOM	9	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDCR	9	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDCR
144	4-Education Center	129	CLASSROOM	9	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDCR	9	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDCR
145	4-Education Center	127	CLASSROOM	4	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDCR	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDCR
146	4-Education Center	122	OFFICES	3	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDP	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDP
147	4-Education Center	121/123	OFFICE	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDP	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDP
148	4-Education Center	121A	KITCHEN/BREAK	5	Incandescent Fixture w/ (1) 60w Incandescent PAR 38 Lamp	60	EDM	5	No Retrofit Proposed	60	EDM
149	4-Education Center	125	PHONE ROOM	1	1'x4' Pendant Mounted Box w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDS
150	4-Education Center	123B	MECHANICAL ROOM	1	Incandescent Bare Socket Fixture w/ (1) 52w Incandescent Lamp	52	EDS	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	EDS
151	4-Education Center	125A	CORRIDOR	1	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDH
152	4-Education Center	E10	ELEV VESTIBULE	1	1'x4' Surface Mounted Box w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDH
153	4-Education Center	120	CLASSROOM	6	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDCR	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDCR
154	4-Education Center	120	CLASSROOM	2	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	EDCR	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDCR
155	4-Education Center	117	OFFICE	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDP	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDP
156	4-Education Center	117A	STORAGE ROOM	1	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDS
157	4-Education Center	117B	NURSES OFFICE	2	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts, Pendant Mounted	112	EDP	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDP
158	4-Education Center	117C	OFFICE	1	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts, Pendant Mounted	112	EDP	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDP
159	4-Education Center	118	MAIL ROOM	2	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Pendant Mounted	58	EDP	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDP
160	4-Education Center	120A	STORAGE CLOSET	1	Incandescent Jelly Jar Fixture w/ (1) 52w Incandescent Lamp	52	EDS	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	EDS
161	4-Education Center	116	CLASSROOM	6	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	EDCR	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDCR
162	4-Education Center	S15	STAIRS	1	Incandescent Fixture w/ (1) 52w Incandescent Lamp	52	EDH	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	EDH
163	4-Education Center	S15	STAIRS	1	Incandescent Fixture w/ (1) 52w Incandescent Lamp	52	EDH	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	EDH

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
164	4-Education Center	S15	STAIRS	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
165	4-Education Center	S14	STAIRS	1	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	EDH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDH
166	4-Education Center	S14	STORAGE CLOSET	1	Incandescent Bare Socket Fixture w/ (1) 52w Incandescent Lamp	52	EDS	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	EDS
167	4-Education Center	115	OFFICES	4	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts, Pendant Mounted	112	EDO	4	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDO
168	4-Education Center	113/114	CLASSROOM	8	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDCR	8	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDCR
169	4-Education Center	113/114	CLASSROOM	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
170	4-Education Center	113A	SMALL CLASS	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDCR	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDCR
171	4-Education Center	113B	SMALL CLASS	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDCR	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDCR
172	4-Education Center	112	SPECIAL NEEDS GYM	6	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	EDGYM	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDGYM
173	4-Education Center	112	SPECIAL NEEDS GYM	2	Exit Sign w/ LED	2	X	2	No Retrofit Proposed	2	X
174	4-Education Center	112A	SPECIAL NEEDS GYM	1	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDGYM	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDGYM
175	4-Education Center	112A	SPECIAL NEEDS GYM	1	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts, Pendant Mounted	112	EDGYM	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDGYM
176	4-Education Center	112A	SPECIAL NEEDS GYM	1	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	EDGYM	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDGYM
177	4-Education Center	C11	CORRIDOR	6	1'x4' Surface Mounted Box w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDH	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDH
178	4-Education Center	S17A	STAIRS CORRIDOR	2	1'x4' Surface Mounted Box w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDH	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDH
179	4-Education Center	S16	STAIRS	2	Incandescent Fixture w/ (1) 52w Incandescent Lamp	52	EDH	2	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	EDH
180	4-Education Center	S17	STAIRS	1	Compact Fluorescent Globe Fixture w/ 13w Compact Fluorescent Lamp & Magnetic Ballast	15	EDH	1	No Retrofit Proposed	15	EDH
181	4-Education Center	S16	STAIRS	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
182	4-Education Center	111	TELEPHONE ROOM	3	4' Strip Fluorescent w/ (2) F40T12/40w Lamps & (1) Energy Efficient Magnetic Ballast	86	EDS	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDS
183	4-Education Center	S10	STAIRS	2	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Wall Mounted	58	EDH	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDH
184	4-Education Center	109	CUSTODIAL CLOSET	1	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	EDS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDS
185	4-Education Center	111A	MECHANICAL ROOM	4	4' Strip Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	EDS	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDS
186	4-Education Center	C12	CORRIDOR	1	1'x8' Surface Mounted Box w/ (4) FO32T8 Lamps & (1) Electronic Ballast	112	EDH	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDH
187	4-Education Center	C12	CORRIDOR	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
188	4-Education Center	107A	BOYS RESTROOM	2	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Pendant Mounted	58	EDR	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDR
189	4-Education Center	107B	GIRLS RESTROOM	2	4' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts, Pendant Mounted	112	EDR	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power HE Ballast, Outboard Lamps Only	48	EDR
190	4-Education Center	107C	CUSTODIAL CLOSET	1	4' Wrap Fluorescent w/ (1) F40T12/34w Lamp & (1) Energy Efficient Magnetic Ballast, Wall Mounted	42	EDS	1	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	EDS
191	4-Education Center	103	MECHANICAL ROOM	2	Incandescent Jelly Jar Fixture w/ (1) 52w Incandescent Lamp	52	EDS	2	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	EDS
192	4-Education Center	C13	CORRIDOR	4	1'x8' Surface Mounted Box w/ (4) FO32T8 Lamps & (1) Electronic Ballast	112	EDH	4	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDH
193	4-Education Center	C14	IT STORAGE	5	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDS	5	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDS
194	4-Education Center	C14	IT STORAGE	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
195	4-Education Center	101	SERVER ROOM	7	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDS	7	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDS
196	4-Education Center	101	SERVER ROOM	1	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Emergency Lights	58	EDS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDS
197	4-Education Center	101A	OFFICES	5	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDP	5	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDP

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
198	4-Education Center	S11	STAIRS	1	Incandescent Fixture w/ (2) 75w Incandescent PAR38 Lamp	150	EDH	1	No Retrofit Proposed	150	EDH
199	4-Education Center	100	OFFICE	4	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDP	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDP
200	4-Education Center	102	CUBICLES	12	2'x2' Recessed Troffer w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast	58	EDO	12	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	EDO
201	4-Education Center	104	STORAGE	2	2'x4' Recessed Troffer w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	EDS	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	EDS
202	4-Education Center	104	STORAGE	1	2'x4' Recessed Troffer w/ (1) F32T8 Lamps & (1) Electronic Ballast, 4-Lamp Fixture Delamped to 1	32	EDS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	EDS
203	4-Education Center	106	BOILER ROOM	7	8' Strip Fluorescent w/ (2) F40T12/40w Lamps & (1) Energy Efficient Magnetic Ballast, Pendant Mounted	86	EDS	7	Relamp & Reballast an 8' Fixture w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDS
204	4-Education Center	106	BOILER ROOM	1	8' Strip Fluorescent w/ (2) F40T12/40w Lamps & (1) Energy Efficient Magnetic Ballast, Pendant Mounted	86	EDS	1	Relamp & Reballast an 8' Fixture w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDS
205	4-Education Center	106	BOILER ROOM	1	Incandescent Poker Hat Fixture w/ (1) 52w Incandescent Lamp	52	EDS	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	EDS
206	4-Education Center	106	BOILER ROOM	2	8' Strip Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	EDS	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDS
207	4-Education Center	106	BOILER ROOM	1	Incandescent Bare Socket Fixture w/ (1) 52w Incandescent Lamp	52	EDS	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	EDS
208	4-Education Center	106	BOILER ROOM	1	8' Strip Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	EDS	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDS
209	4-Education Center	S12	STAIRS	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
210	4-Education Center	S12	STAIRS	1	1'x4' Surface Mounted Box w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDH
211	4-Education Center	S12	STAIRS	1	1'x8' Surface Mounted Box w/ (4) FO32T8 Lamps & (1) Electronic Ballast	112	EDH	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDH
212	4-Education Center	S12A	STAIRS VESTIBULE	1	1'x4' Surface Mounted Box w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDH
213	4-Education Center	108	CUBICLES	9	2'x4' Recessed Troffer w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	EDO	9	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDO
214	4-Education Center	108A	OFFICE	2	2'x4' Recessed Troffer w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	EDP	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDP
215	4-Education Center	108A	OFFICE	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	EDP	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	EDP
216	4-Education Center	108B	CUBICLES	7	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDO	7	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDO
217	4-Education Center	108B	CUBICLES	1	2'x4' Recessed Troffer w/ (0) F32T8 Lamps & (1) Electronic Ballast, 3-Lamp Fixture Delamped to 0	0	EDO	1	No Retrofit Proposed	0	EDO
218	4-Education Center	110	OFFICE	3	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDP	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDP
219	4-Education Center	110B	OFFICE	4	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDP	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDP
220	4-Education Center	110A	CONFERENCE ROOM	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDM	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDM
221	4-Education Center	107	CLASSROOM	4	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDCR	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDCR
222	4-Education Center	107	CLASSROOM	6	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDCR	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDCR
223	4-Education Center	C15	CORRIDOR	21	1'x8' Surface Mounted Box w/ (4) FO32T8 Lamps & (1) Electronic Ballast	112	EDH	21	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDH
224	4-Education Center	C15	CORRIDOR	6	Exit Sign w/ LED	2	X	6	No Retrofit Proposed	2	X
225	4-Education Center	C15A	ENTRY VESTIBULE	1	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Pendant Mounted	58	EDH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDH
226	4-Education Center	M1A	CLASSROOM	6	8' Wrap Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	EDCR	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDCR
227	4-Education Center	M1A	CLASSROOM	3	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	EDCR	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDCR
228	4-Education Center	M1B	CLASSROOM	6	8' Wrap Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	EDCR	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDCR
229	4-Education Center	M1B	CLASSROOM	3	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	EDCR	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDCR
230	4-Education Center	M1C	CLASSROOM	6	8' Wrap Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	EDCR	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDCR

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
231	4-Education Center	M1C	CLASSROOM	3	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	EDCR	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDCR
232	4-Education Center	M1E	SMALL PLAY AREA	1	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast, Pendant Mounted	73	EDCR	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDCR
233	4-Education Center	M1E	SMALL PLAY AREA	1	8' Wrap Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	EDCR	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDCR
234	4-Education Center	M1C	CLASSROOM	2	Exit Sign w/ (6) 6 Watt Incandescent Lamp	36	X	2	New LED Exit Sign, with Wire Guard	2	X
235	4-Education Center	M1F	restroom/classroom	1	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast, Pendant Mounted	73	EDR	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDR
236	4-Education Center	M1D	RESTROOM	1	8' Strip Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	EDR	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDR
237	4-Education Center	M1G	EXTERIOR	1	Compact Fluorescent Jelly Jar Fixture w/ 13w Compact Fluorescent Lamp & Magnetic Ballast	15	E	1	No Retrofit Proposed	15	E
238	4-Education Center	M1G	EXTERIOR	2	Incandescent Jelly Jar Fixture w/ (1) 52w Incandescent Lamp	52	E	2	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	E
239	4-Education Center	M2A	STACKS	6	8' Wrap Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	EDO	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDO
240	4-Education Center	M2A	STACKS	3	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	EDO	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDO
241	4-Education Center	M2B	STORAGE	6	8' Wrap Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	EDS	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDS
242	4-Education Center	M2B	STORAGE	3	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	EDS	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDS
243	4-Education Center	M2D	CORRIDOR	1	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast, Pendant Mounted	73	EDH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDH
244	4-Education Center	M2E	RESTROOM	1	8' Strip Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	EDR	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDR
245	4-Education Center	M2F	STORAGE	1	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast, Pendant Mounted	73	EDS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDS
246	4-Education Center	M2F	STORAGE	1	8' Wrap Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	EDS	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	EDS
247	4-Education Center	M2C	CONFERENCE ROOM	25	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	EDM	25	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	EDM
248	4-Education Center	M2G	EXTERIOR	4	Incandescent Jelly Jar Fixture w/ (1) 52w Incandescent Lamp	52	E	4	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	E
249	4-Education Center	M2G	EXTERIOR	1	Incandescent Fixture w/ (1) 52w Incandescent Lamp	52	E	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	E
250	4-Education Center	M2G	EXTERIOR	1	Incandescent Jelly Jar Fixture w/ (1) 52w Incandescent Lamp	52	E	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	E
251	4-Education Center	M1G	EXTERIOR	2	Incandescent Jelly Jar Fixture w/ (1) 52w Incandescent Lamp	52	E	2	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	E
252	4-Education Center	E00	ELEVATOR	1	4' Strip Fluorescent w/ (1) F40T12/34w Lamp & (1) Energy Efficient Magnetic Ballast	42	E	1	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	E
253	4-Education Center	E00	ELEVATOR	1	3' Strip w/ (1) F30T12/25w Lamps & (1) Energy Efficient Magnetic Ballast	38	E	1	Relamp & Reballast w/ (1) F25T8 Lamps & (1) 1/25 Elec. Low-Power High Efficiency Ballast	21	E
254	4-Education Center	EXT	BUILDING EXTERIOR	1	Incandescent Fixture w/ (1) 52w Incandescent Lamp	52	E	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	E
255	4-Education Center	EXT	BUILDING EXTERIOR	1	HID Fixture w/ (1) 150w High Pressure Sodium, Wall Pack	190	E	1	No Retrofit Proposed	190	E
256	4-Education Center	EXT	BUILDING EXTERIOR	1	HID Wall Pack Fixture w/ (1) 175w High Pressure Sodium	215	E	1	No Retrofit Proposed	215	E
257	4-Education Center	EXT	BUILDING EXTERIOR	5	HID Fixture w/ (1) 150w High Pressure Sodium, Wall Pack	190	E	5	No Retrofit Proposed	190	E
258	4-Education Center	EXT	BUILDING EXTERIOR	1	HID Fixture w/ (1) 150w High Pressure Sodium, Wall Pack	190	E	1	No Retrofit Proposed	190	E
259	4-Education Center	E5	EXTER - BY STAIR 5	1	Incandescent Jelly Jar Fixture w/ (1) 52w Incandescent Lamp	52	E	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	E
260	4-Education Center	E6	EXTER - BY STAIR 6	1	Incandescent Jelly Jar Fixture w/ (1) 52w Incandescent Lamp	52	E	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	E
261	4-Education Center	EXT	BUILDING EXTERIOR	1	HID Wall Mounted Fixture w/ (1) 150w High Pressure Sodium	190	E	1	No Retrofit Proposed	190	E
262	4-Education Center	EXT	BUILDING EXTERIOR	2	HID Wall Mounted Fixture w/ (1) 100w High Pressure Sodium	130	E	2	No Retrofit Proposed	130	E
263	4-Education Center	E12	EXTER - BY STAIR 12	1	Incandescent Jelly Jar Fixture w/ (1) 52w Incandescent Lamp	52	E	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	E

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
264	4-Education Center	E11	EXTER - BY STAIR 11	1	Incandescent Jelly Jar Fixture w/ (1) 52w Incandescent Lamp	52	E	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	E
265	4-Education Center	E09	BUILDING EXTERIOR	1	HID Wall Mounted Fixture w/ (1) 50w High Pressure Sodium Lamp & Ballast	60	E	1	No Retrofit Proposed	60	E
266	3-Oak Hill Middle School	137	principals office	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	OHP	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHP
267	3-Oak Hill Middle School	132	copy room	1	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	OHO	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHO
268	3-Oak Hill Middle School	137a	office	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	OHP	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHP
269	3-Oak Hill Middle School	137b	lobby area	5	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	OHH	5	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHH
270	3-Oak Hill Middle School	137b	lobby corridor	1	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast, Battery Backup	34	OHH	1	No Retrofit Proposed	34	OHH
271	3-Oak Hill Middle School	134	office	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	OHP	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHP
272	3-Oak Hill Middle School	138	office	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	OHP	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHP
273	3-Oak Hill Middle School	140	copy room	1	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	OHO	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHO
274	3-Oak Hill Middle School	135	womens restroom	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHR	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHR
275	3-Oak Hill Middle School	128	nurses office	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	OHO	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHO
276	3-Oak Hill Middle School	129	rest/exam room	1	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	OHR	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHR
277	3-Oak Hill Middle School	130	rest/exam room	1	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	OHR	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHR
278	3-Oak Hill Middle School	131	restroom	1	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	OHR	1	No Retrofit Proposed	34	OHR
279	3-Oak Hill Middle School	127	janitors office	6	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHP	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHP
280	3-Oak Hill Middle School	127b	storage	1	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHS
281	3-Oak Hill Middle School	127a	electrical room	1	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHS
282	3-Oak Hill Middle School	126	classroom	9	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	9	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR
283	3-Oak Hill Middle School	126a	work room	1	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHO	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHO
284	3-Oak Hill Middle School	125a	work room	1	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHO	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHO
285	3-Oak Hill Middle School	125	classroom	9	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	9	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR
286	3-Oak Hill Middle School	124	classroom	9	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	9	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR
287	3-Oak Hill Middle School	123	science classroom	10	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	10	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR
288	3-Oak Hill Middle School	123a	science storage	1	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	OHS	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHS
289	3-Oak Hill Middle School	122	classroom	10	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	10	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR
290	3-Oak Hill Middle School	122a	science storage	1	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	OHS	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHS
291	3-Oak Hill Middle School	121	classroom	9	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	9	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR
292	3-Oak Hill Middle School	120	classroom	9	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	9	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR
293	3-Oak Hill Middle School	120a	work room	1	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHO	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHO

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
294	3-Oak Hill Middle School	119a	work room	1	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHO	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHO
295	3-Oak Hill Middle School	115	cafeteria	25	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHO	25	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHO
296	3-Oak Hill Middle School	115	cafeteria	4	Compact Fluorescent Downlight Fixture w/ (2) 13w Compact Fluorescent Lamps & Magnetic Ballast	30	OHO	4	No Retrofit Proposed	30	OHO
297	3-Oak Hill Middle School	115	cafeteria	25	Incandescent Fresnel Lensed Fixture w/ (1) 135w Incandescent Lamp, Dimmer Controlled	135	OHO	25	Retrofit w/ Downlight Hard-Wire Kit w/ (1) 18w CF Lamp & Dimmable Ballast, 8" Can	19	OHO
298	3-Oak Hill Middle School	115	cafeteria	3	Exit Sign w/ LED	2	X	3	No Retrofit Proposed	2	X
299	3-Oak Hill Middle School	115	kitchen corridor	2	2'x2' Recessed Troffer w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast	58	OHH	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	OHH
300	3-Oak Hill Middle School	118	teachers lounge	5	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHM	5	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHM
301	3-Oak Hill Middle School	118	teachers lounge	1	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast, Emergency Lights	88	OHM	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHM
302	3-Oak Hill Middle School	110	gymnasium	24	HID Low Bay Fixture w/ (1) 250w Metal Halide Lamp & Ballast	295	OHGYM	24	New Big Gym Fixture w/ (3) F54T5HO Lamps & (2) 2/54 T5 Elec. HO Ballasts, Pendent Mount	185	OHGYM
303	3-Oak Hill Middle School	110	gymnasium	5	Exit Sign w/ LED	2	X	5	New LED Exit Sign, with Wire Guard	2	X
304	3-Oak Hill Middle School	115A	KITCHEN	10	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHO	10	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHO
305	3-Oak Hill Middle School	115A	KITCHEN HOODS	4	Incandescent "Jelly Jar" Fixture w/ 23w Screw-In Compact Fluorescent Lamp	23	OHO	4	No Retrofit Proposed	23	OHO
306	3-Oak Hill Middle School	115B	REFRIGERATOR	2	Incandescent "Jelly Jar" Fixture w/ 23w Screw-In Compact Fluorescent Lamp	23	OHO	2	No Retrofit Proposed	23	OHO
307	3-Oak Hill Middle School	115C	STORAGE/OFFICE	2	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHS	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHS
308	3-Oak Hill Middle School	118	TEACHERS DINING	6	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHO	6	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHO
309	3-Oak Hill Middle School	110A	GYM STORAGE	4	4' Strip Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHS	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHS
310	3-Oak Hill Middle School	C1	CORRIDOR	16	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHH	16	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHH
311	3-Oak Hill Middle School	C1	CORRIDOR	3	Exit Sign w/ LED	2	X	3	No Retrofit Proposed	2	X
312	3-Oak Hill Middle School	C1	CORRIDOR	14	Compact Fluorescent Recessed Fixture w/ (2) 13w Compact Fluorescent Lamps & Magnetic Ballast	30	OHH	14	No Retrofit Proposed	30	OHH
313	3-Oak Hill Middle School	136	MENS RESTROOM	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHR	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHR
314	3-Oak Hill Middle School	101	GIRLS RESTROOM	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHR	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHR
315	3-Oak Hill Middle School	102	BOYS RESTROOM	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHR	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHR
316	3-Oak Hill Middle School	103	CUSTODIAL OFFICE	1	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHP	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHP
317	3-Oak Hill Middle School	103A	CUSTODIAL CLOSET	1	Compact Fluorescent Recessed Fixture w/ (2) 13w Compact Fluorescent Lamps & Magnetic Ballast	30	OHS	1	No Retrofit Proposed	30	OHS
318	3-Oak Hill Middle School	C2	CORRIDOR	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
319	3-Oak Hill Middle School	C2	CORRIDOR	6	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHH	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHH
320	3-Oak Hill Middle School	C2	CORRIDOR	7	Compact Fluorescent Recessed Fixture w/ (2) 13w Compact Fluorescent Lamps & Magnetic Ballast	30	OHH	7	No Retrofit Proposed	30	OHH
321	3-Oak Hill Middle School	106	CLASSROOM	8	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	8	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR
322	3-Oak Hill Middle School	108	CLASSROOM	12	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	12	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR
323	3-Oak Hill Middle School	107	CLASSROOM	8	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	8	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
324	3-Oak Hill Middle School	109	SHOP CLASSROOM	16	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	16	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR
325	3-Oak Hill Middle School	109A	SHOP CLASSROOM	4	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	OHCR	4	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR
326	3-Oak Hill Middle School	C3	CORRIDOR	3	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHH	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHH
327	3-Oak Hill Middle School	C3	CORRIDOR	3	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Emergency Lights	58	OHH	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHH
328	3-Oak Hill Middle School	C3	CORRIDOR	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
329	3-Oak Hill Middle School	111	PE OFFICE	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	OHP	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHP
330	3-Oak Hill Middle School	112	ENTRY VESTIBULE	1	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	OHH	1	No Retrofit Proposed	34	OHH
331	3-Oak Hill Middle School	112	LOCKERS	7	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHR	7	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHR
332	3-Oak Hill Middle School	114	STAGE	8	Incandescent High Hat Fixture w/ (1) 90w PAR38 Incandescent Lamp	90	OHO	8	No Retrofit Proposed	90	OHO
333	3-Oak Hill Middle School	113	AUDITORIUM	14	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	OHO	14	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	OHO
334	3-Oak Hill Middle School	C4	ENTRY CORRIDOR	7	2'x2' Recessed Troffer w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast	58	OHH	7	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	OHH
335	3-Oak Hill Middle School	C4	ENTRY CORRIDOR	3	2'x2' Recessed Troffer w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast	58	OHH	3	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	OHH
336	3-Oak Hill Middle School	C4	ENTRY CORRIDOR	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
337	3-Oak Hill Middle School	C4	ENTRY CORRIDOR	2	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	2	No Retrofit Proposed	30	X
338	3-Oak Hill Middle School	C5	ENTRY VESTIBULE	2	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	2	No Retrofit Proposed	30	X
339	3-Oak Hill Middle School	C5	ENTRY VESTIBULE	6	2'x2' Recessed Troffer w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast	58	OHH	6	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	OHH
340	3-Oak Hill Middle School	C6	ELEVATOR VESTIBULE	2	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	OHH	2	No Retrofit Proposed	34	OHH
341	3-Oak Hill Middle School	C6	CORRIDOR	8	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHH	8	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHH
342	3-Oak Hill Middle School	C6	CORRIDOR	5	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Emergency Lights	58	OHH	5	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHH
343	3-Oak Hill Middle School	C6	CORRIDOR	2	Exit Sign w/ LED	2	X	2	No Retrofit Proposed	2	X
344	3-Oak Hill Middle School	141	GIRLS RESTROOM	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHR	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHR
345	3-Oak Hill Middle School	142	CLASSROOM	8	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	8	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR
346	3-Oak Hill Middle School	143	CLASSROOM	8	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	8	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR
347	3-Oak Hill Middle School	146	CUSTODIAN STORAGE	1	4' Strip Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHS
348	3-Oak Hill Middle School	146A	STORAGE CLOSET	1	4' Strip Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHS
349	3-Oak Hill Middle School	144	BOYS RESTROOM	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHR	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHR
350	3-Oak Hill Middle School	C6	RESTROOM CORRIDOR	1	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	OHH	1	No Retrofit Proposed	34	OHH
351	3-Oak Hill Middle School	147	OFFICE	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHP	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHP
352	3-Oak Hill Middle School	C6	CORRIDOR	1	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	1	No Retrofit Proposed	30	X
353	3-Oak Hill Middle School	148A	CLASS HALL	1	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	1	No Retrofit Proposed	30	X

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
354	3-Oak Hill Middle School	148A	CLASS HALL	1	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHH
355	3-Oak Hill Middle School	149	STORAGE	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHS	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHS
356	3-Oak Hill Middle School	148	ART CLASS	12	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	12	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR
357	3-Oak Hill Middle School	151	OFFICE	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHO	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHO
358	3-Oak Hill Middle School	152	CLASSROOM	8	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	8	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR
359	3-Oak Hill Middle School	105	CLASSROOM	8	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	8	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR
360	3-Oak Hill Middle School	241	STORAGE/STACKS	4	4' Strip Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Wall Mounted	58	OHS	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHS
361	3-Oak Hill Middle School	C7	CORRIDOR	8	Compact Fluorescent Fixture w/ (2) 18w Compact Fluorescent Lamps & Magnetic Ballast	40	OHH	8	No Retrofit Proposed	40	OHH
362	3-Oak Hill Middle School	C7	CORRIDOR	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
363	3-Oak Hill Middle School	C8	CORRIDOR	2	Exit Sign w/ LED	2	X	2	No Retrofit Proposed	2	X
364	3-Oak Hill Middle School	C8	CORRIDOR	1	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	1	No Retrofit Proposed	30	X
365	3-Oak Hill Middle School	C8	CORRIDOR	9	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHH	9	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHH
366	3-Oak Hill Middle School	C8	CORRIDOR	8	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Emergency Lights	58	OHH	8	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHH
367	3-Oak Hill Middle School	C8	CORRIDOR	14	Compact Fluorescent Fixture w/ (2) 18w Compact Fluorescent Lamps & Magnetic Ballast	40	OHH	14	No Retrofit Proposed	40	OHH
368	3-Oak Hill Middle School	239	WOMENS RESTROOM	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHR	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHR
369	3-Oak Hill Middle School	237	COMPUTER ROOM	8	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	OHO	8	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHO
370	3-Oak Hill Middle School	235	CLASSROOM	7	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	7	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR
371	3-Oak Hill Middle School	235	CLASSROOM	1	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	OHCR	1	No Retrofit Proposed	34	OHCR
372	3-Oak Hill Middle School	235A	OFFICE	1	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHO	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHO
373	3-Oak Hill Middle School	228A	CONFERENCE ROOM	1	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHM	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHM
374	3-Oak Hill Middle School	229A	WORK ROOM	1	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHO	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHO
375	3-Oak Hill Middle School	234A	OFFICE	1	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHP	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHP
376	3-Oak Hill Middle School	C9	CORRIDOR	4	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHH	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHH
377	3-Oak Hill Middle School	C9	CORRIDOR	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Emergency Lights	58	OHH	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHH
378	3-Oak Hill Middle School	C9	CORRIDOR	9	Compact Fluorescent Recessed Fixture w/ (2) 13w Compact Fluorescent Lamps & Magnetic Ballast	30	OHH	9	No Retrofit Proposed	30	OHH
379	3-Oak Hill Middle School	C9	CORRIDOR	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
380	3-Oak Hill Middle School	217	OFFICE	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	OHP	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHP
381	3-Oak Hill Middle School	216	CLASSROOM	6	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	6	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR
382	3-Oak Hill Middle School	170	STAIRS	1	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	OHH	1	New LED Exit Sign	2	OHH
383	3-Oak Hill Middle School	170	STAIRS	1	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Emergency Lights	58	OHH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHH

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
384	3-Oak Hill Middle School	170	STAIRS	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHH	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHH
385	3-Oak Hill Middle School	C2	STAIRS TO AUDITORIUM	1	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	OHH	1	New LED Exit Sign	2	OHH
386	3-Oak Hill Middle School	C2	STAIRS TO AUDITORIUM	2	Compact Fluorescent Recessed Fixture w/ (2) 13w Compact Fluorescent Lamps & Magnetic Ballast	30	OHH	2	No Retrofit Proposed	30	OHH
387	3-Oak Hill Middle School	173	STAIRS	1	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHH
388	3-Oak Hill Middle School	173	STAIRS	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Emergency Lights	58	OHH	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHH
389	3-Oak Hill Middle School	173	STAIRS	1	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	OHH	1	New LED Exit Sign	2	OHH
390	3-Oak Hill Middle School	173	STAIRS	1	2'x4' Recessed Troffer w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	OHH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHH
391	3-Oak Hill Middle School	ST01	STAIRS	2	2'x2' Recessed Troffer w/ (1) FB32T8 6"-U Lamps & (1) Electronic Ballast, 2 lamp fixture delamped to 1	32	OHH	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	OHH
392	3-Oak Hill Middle School	ST01	STAIRS	2	Compact Fluorescent Fixture w/ (3) 13w Compact Fluorescent Lamps & Magnetic Ballast	45	OHH	2	No Retrofit Proposed	45	OHH
393	3-Oak Hill Middle School	80	STAIRS	4	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHH	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHH
394	3-Oak Hill Middle School	80	STAIRS	2	Compact Fluorescent Fixture w/ (3) 13w Compact Fluorescent Lamps & Magnetic Ballast	45	OHH	2	No Retrofit Proposed	45	OHH
395	3-Oak Hill Middle School	282	STAIRS	2	Compact Fluorescent Fixture w/ (3) 13w Compact Fluorescent Lamps & Magnetic Ballast	45	OHH	2	No Retrofit Proposed	45	OHH
396	3-Oak Hill Middle School	282	STAIRS	4	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHH	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHH
397	3-Oak Hill Middle School	222	LIBRARY	24	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	OHO	24	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHO
398	3-Oak Hill Middle School	222	LIBRARY	6	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	OHO	6	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHO
399	3-Oak Hill Middle School	222	LIBRARY	8	Compact Fluorescent Recessed Fixture w/ (2) 13w Compact Fluorescent Lamps & Magnetic Ballast	30	OHO	8	No Retrofit Proposed	30	OHO
400	3-Oak Hill Middle School	223	WORK ROOM	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	OHO	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHO
401	3-Oak Hill Middle School	224	OFFICE	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	OHP	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHP
402	3-Oak Hill Middle School	225	WORK ROOM	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	OHO	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHO
403	3-Oak Hill Middle School	226	ELECTRICAL ROOM	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	OHS	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHS
404	3-Oak Hill Middle School	150A	STORAGE	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHS	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHS
405	3-Oak Hill Middle School	240	MENS RESTROOM	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHR	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHR
406	3-Oak Hill Middle School	238	Server Room?	3	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHS	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHS
407	3-Oak Hill Middle School	236	COMPUTER ROOM	8	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	OHO	8	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHO
408	3-Oak Hill Middle School	234	CLASSROOM	9	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	9	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR
409	3-Oak Hill Middle School	233	CLASSROOM	9	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	9	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR
410	3-Oak Hill Middle School	232	CLASSROOM	10	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	10	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR
411	3-Oak Hill Middle School	232A	STORAGE	1	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	OHS	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHS
412	3-Oak Hill Middle School	231	CLASSROOM	10	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	10	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR
413	3-Oak Hill Middle School	231A	STORAGE	1	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	OHS	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHS

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
414	3-Oak Hill Middle School	230	CLASSROOM	9	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	9	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR
415	3-Oak Hill Middle School	229	CLASSROOM	9	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	9	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR
416	3-Oak Hill Middle School	228	CLASSROOM	7	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	7	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR
417	3-Oak Hill Middle School	228	CLASSROOM	1	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	OHCR	1	No Retrofit Proposed	34	OHCR
418	3-Oak Hill Middle School	227	MECHANICAL ROOM	5	4' Strip Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHS	5	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHS
419	3-Oak Hill Middle School	227	MECHANICAL ROOM	3	4' Strip Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Wall Mounted	58	OHS	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHS
420	3-Oak Hill Middle School	202	GIRLS RESTROOM	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHR	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHR
421	3-Oak Hill Middle School	203	BOYS RESTROOM	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHR	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHR
422	3-Oak Hill Middle School	204	STORAGE	1	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHS
423	3-Oak Hill Middle School	205	CUSTODIAL CLOSET	1	4' Strip Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHS
424	3-Oak Hill Middle School	206-207	CLASSROOM	16	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	16	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR
425	3-Oak Hill Middle School	208	CLASSROOM	7	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	7	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR
426	3-Oak Hill Middle School	214	OPEN OFFICE/CORRIDOR	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	OHO	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHO
427	3-Oak Hill Middle School	214	OPEN OFFICE/CORRIDOR	2	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	OHO	2	No Retrofit Proposed	34	OHO
428	3-Oak Hill Middle School	214	OPEN OFFICE/CORRIDOR	1	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	OHO	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHO
429	3-Oak Hill Middle School	214	OPEN OFFICE/CORRIDOR	1	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	OHO	1	No Retrofit Proposed	34	OHO
430	3-Oak Hill Middle School	210	OFFICE	1	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	OHP	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHP
431	3-Oak Hill Middle School	213	OFFICE	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	OHP	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHP
432	3-Oak Hill Middle School	212	OFFICE	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	OHP	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHP
433	3-Oak Hill Middle School	211	OFFICE	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	OHP	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHP
434	3-Oak Hill Middle School	209	CONFERENCE ROOM	4	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser, Butted Fixture	88	OHM	4	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHM
435	3-Oak Hill Middle School	215	CLASSROOM	8	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	8	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR
436	3-Oak Hill Middle School	218	BOYS LOCKER	7	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHR	7	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHR
437	3-Oak Hill Middle School	200	TEACHERS LOUNGE	6	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	OHM	6	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHM
438	3-Oak Hill Middle School	201	STORAGE	1	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHS
439	3-Oak Hill Middle School	C10	ELEVATOR VESTIBULE	1	2'x2' Recessed Troffer w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast	58	OHM	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	OHM
440	3-Oak Hill Middle School	C10	CORRIDOR	12	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHM	12	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHM
441	3-Oak Hill Middle School	C10	CORRIDOR	2	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	OHM	2	New LED Exit Sign	2	OHM
442	3-Oak Hill Middle School	C10	CORRIDOR	1	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	OHM	1	No Retrofit Proposed	34	OHM
443	3-Oak Hill Middle School	247	CUSTODIAL CLOSET	1	4' Strip Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHS

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
444	3-Oak Hill Middle School	246	STORAGE	1	4' Strip Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHS
445	3-Oak Hill Middle School	244A	BOYS RESTROOM	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHR	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHR
446	3-Oak Hill Middle School	9	SPRINKLER ROOM	1	4' Strip Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHS
447	3-Oak Hill Middle School	9	SPRINKLER ROOM	1	4' Strip Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Wall Mounted	58	OHS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHS
448	3-Oak Hill Middle School	8	OFFICE	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	OHP	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHP
449	3-Oak Hill Middle School	7	MUSIC ROOM	12	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	12	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR
450	3-Oak Hill Middle School	7	MUSIC ROOM	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
451	3-Oak Hill Middle School	6	MUSIC STORAGE/OFFICE	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHS	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHS
452	3-Oak Hill Middle School	5	OFFICE	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHP	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHP
453	3-Oak Hill Middle School	5A	BOYS RESTROOM	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHR	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHR
454	3-Oak Hill Middle School	9A	AUDIO/VISUAL ROOM	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHS	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHS
455	3-Oak Hill Middle School	10	CLASSROOM	8	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	8	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR
456	3-Oak Hill Middle School	11A	CLASSROOM	5	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	5	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR
457	3-Oak Hill Middle School	11B	CLASSROOM	5	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	5	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR
458	3-Oak Hill Middle School	12	CUSTODIAL STORAGE	2	4' Strip Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHS	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHS
459	3-Oak Hill Middle School	13	MECHANICAL ROOM	1	4' Strip Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHS
460	3-Oak Hill Middle School	5B	GIRLS RESTROOM	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHR	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHR
461	3-Oak Hill Middle School	2	BOILER ROOM	11	4' Strip Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Chain Mounted	58	OHS	11	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHS
462	3-Oak Hill Middle School	2A	TELEPHONE ROOM	2	4' Strip Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Chain Mounted	58	OHS	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHS
463	3-Oak Hill Middle School	2B	EM ELECTRICAL ROOM	1	4' Strip Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHS
464	3-Oak Hill Middle School	3	ELECTRICAL ROOM	4	4' Strip Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHS	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHS
465	3-Oak Hill Middle School	C11	CORRIDOR	8	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHH	8	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHH
466	3-Oak Hill Middle School	C11	CORRIDOR	7	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Emergency Lights	58	OHH	7	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHH
467	3-Oak Hill Middle School	C11	CORRIDOR	3	Exit Sign w/ LED	2	X	3	No Retrofit Proposed	2	X
468	3-Oak Hill Middle School	C11	CORRIDOR	1	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	OHH	1	New LED Exit Sign	2	OHH
469	3-Oak Hill Middle School	C11	CORRIDOR	1	2'x2' Recessed Troffer w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast	58	OHH	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	OHH
470	3-Oak Hill Middle School	C11	ELEVATOR VESTIBULE	1	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Emergency Lights	58	OHH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHH
471	3-Oak Hill Middle School	E1	ELEVATOR	2	4' Strip Fluorescent w/ (1) F40T12/40w Lamp & (1) Energy Efficient Magnetic Ballast	50	OHH	2	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	OHH
472	3-Oak Hill Middle School	242	GIRLS RESTROOM	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	OHR	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	OHR
473	3-Oak Hill Middle School	243	CLASSROOM	8	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	8	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
474	3-Oak Hill Middle School	244	CLASSROOM	8	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	8	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR
475	3-Oak Hill Middle School	249	CLASSROOM	8	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	8	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR
476	3-Oak Hill Middle School	249A	CLASS STORAGE	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHS	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHS
477	3-Oak Hill Middle School	250	OFFICE	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHP	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHP
478	3-Oak Hill Middle School	251	CLASSROOM	8	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	OHCR	8	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	OHCR
479	3-Oak Hill Middle School	EXT	EXTERIOR FRONT OVERHANG	12	Incandescent Fixture w/ 23w Screw-In Compact Fluorescent Lamp	23	E	12	No Retrofit Proposed	23	E
480	3-Oak Hill Middle School	EXT	BLDG EXTERIOR	16	HID Fixture w/ (1) 250w High Pressure Sodium, Wall Packed	295	E	16	No Retrofit Proposed	295	E
481	3-Oak Hill Middle School	EXT	BLDG EXTERIOR	1	Incandescent Fixture w/ (1) 300w Halogen Lamp	300	E	1	New Compact Fluorescent Flood Fixture w/ (2) 42w CF Lamp & Electronic Ballast	90	E
482	3-Oak Hill Middle School	EXT	BLDG EXTERIOR	6	HID Fixture w/ (1) 250w Metal Halide Lamp & Ballast	295	E	6	No Retrofit Proposed	295	E
483	3-Oak Hill Middle School	EXT	BLDG EXTERIOR	2	Pole Mounted HID Fixture w/ (2) 175w High Pressure Sodium Lamps	430	E	2	No Retrofit Proposed	430	E
484	3-Oak Hill Middle School	EXT	BLDG EXTERIOR	1	HID Fixture w/ (1) 250w High Pressure Sodium	295	E	1	No Retrofit Proposed	295	E
485	2-Brown Middle School	213	classroom	6	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRCR
486	2-Brown Middle School	213	classroom	2	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRCR	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRCR
487	2-Brown Middle School	h1	hall 1	14	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast, Dual Switched	39	BRH	14	No Retrofit Proposed	39	BRH
488	2-Brown Middle School	h1	hall 1	2	Exit Sign w/ LED	2	X	2	No Retrofit Proposed	2	X
489	2-Brown Middle School	w213	womens restroom	1	2'x2' Surface Mounted Box w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BRR	1	No Retrofit Proposed	34	BRR
490	2-Brown Middle School	m213	mens restroom	1	2'x2' Surface Mounted Box w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BRR	1	No Retrofit Proposed	34	BRR
491	2-Brown Middle School	215	classroom	6	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRCR
492	2-Brown Middle School	215	classroom	2	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRCR	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRCR
493	2-Brown Middle School	214	classroom	2	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRCR	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRCR
494	2-Brown Middle School	214	classroom	6	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRCR
495	2-Brown Middle School	b214	boys restroom	3	2'x2' Surface Mounted Box w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BRR	3	No Retrofit Proposed	34	BRR
496	2-Brown Middle School	h2	hall 2	16	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BRH	16	No Retrofit Proposed	34	BRH
497	2-Brown Middle School	h2	hall 2	2	Exit Sign w/ LED	2	X	2	No Retrofit Proposed	2	X
498	2-Brown Middle School	217	classroom	6	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRCR
499	2-Brown Middle School	217	classroom	2	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRCR	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRCR
500	2-Brown Middle School	j214	janitors closet	1	Compact Fluorescent Fixture w/ 13w Compact Fluorescent Lamp & Magnetic Ballast	15	BRS	1	No Retrofit Proposed	15	BRS
501	2-Brown Middle School	g214	girls restroom	3	2'x2' Surface Mounted Box w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BRR	3	No Retrofit Proposed	34	BRR
502	2-Brown Middle School	219	classroom	6	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRCR
503	2-Brown Middle School	219	storage	1	Incandescent Fixture w/ (1) 90w Incandescent Lamp, Wall Mounted	90	BRS	1	New 2' Vanity Luminaire w/ (1) F17T8 Lamp & (1) 1/17 Elec. Normal-Power High Efficiency Ballast	17	BRS

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
504	2-Brown Middle School	216	classroom	6	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRCR
505	2-Brown Middle School	216	classroom	2	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRCR	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRCR
506	2-Brown Middle School	221	classroom	6	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRCR
507	2-Brown Middle School	221s1	classroom closet 1	1	Incandescent Recessed Fixture w/ (1) 90w Incandescent Lamp	90	BRS	1	Relamp w/ (1) 19 watt Compact Fluorescent Screw-In	19	BRS
508	2-Brown Middle School	221s2	classroom closet 2	1	Incandescent Recessed Fixture w/ (1) 90w Incandescent Lamp	90	BRS	1	Relamp w/ (1) 19 watt Compact Fluorescent Screw-In	19	BRS
509	2-Brown Middle School	h3	hall 3	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRH	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRH
510	2-Brown Middle School	223	classroom	6	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRCR
511	2-Brown Middle School	223s1	classroom closet 1	1	Incandescent Recessed Fixture w/ (1) 90w Incandescent Lamp	90	BRS	1	Relamp w/ (1) 19 watt Compact Fluorescent Screw-In	19	BRS
512	2-Brown Middle School	223s2	classroom closet 2	1	Incandescent Recessed Fixture w/ (1) 90w Incandescent Lamp	90	BRS	1	Relamp w/ (1) 19 watt Compact Fluorescent Screw-In	19	BRS
513	2-Brown Middle School	220	classroom	8	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRCR	8	Relamp w/ (1) 19 watt Compact Fluorescent Screw-In	19	BRCR
514	2-Brown Middle School	225	classroom	9	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	9	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRCR
515	2-Brown Middle School	222	classroom	9	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	9	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRCR
516	2-Brown Middle School	227	classroom	9	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	9	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRCR
517	2-Brown Middle School	224	classroom	9	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	9	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRCR
518	2-Brown Middle School	218	classroom	4	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRCR
519	2-Brown Middle School	h4	hall 4	10	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRH	10	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRH
520	2-Brown Middle School	232	classroom	8	2'x4' Recessed Troffer w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	8	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	BRCR
521	2-Brown Middle School	231	classroom	8	2'x4' Recessed Troffer w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	8	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	BRCR
522	2-Brown Middle School	229b	classroom	6	2'x4' Recessed Troffer w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	BRCR
523	2-Brown Middle School	230	classroom	15	2'x4' Recessed Troffer w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	15	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	BRCR
524	2-Brown Middle School	230	classroom closet	1	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRS
525	2-Brown Middle School	jc230	janitors closet	1	4' Industrial Hood w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRS
526	2-Brown Middle School	m230	mens restroom	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRR	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRR
527	2-Brown Middle School	w230	womens restroom	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRR	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRR
528	2-Brown Middle School	229a	classroom	6	2'x4' Recessed Troffer w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	BRCR
529	2-Brown Middle School	s2	stair 2	2	2'x2' Recessed Flanged Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BRH	2	No Retrofit Proposed	34	BRH
530	2-Brown Middle School	s2	stair 2	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
531	2-Brown Middle School	212	classroom	9	2'x4' Recessed Troffer w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	9	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	BRCR
532	2-Brown Middle School	h5	hall 5	6	2'x2' Recessed Flanged Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BRH	6	No Retrofit Proposed	34	BRH
533	2-Brown Middle School	h5	hall 5	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
534	2-Brown Middle School	211	lab	3	2'x4' Recessed Troffer w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRO	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	BRO
535	2-Brown Middle School	228	classroom	9	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	BRCR	9	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	BRCR
536	2-Brown Middle School	210	classroom	9	2'x4' Recessed Troffer w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	9	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	BRCR
537	2-Brown Middle School	209	office	4	2'x4' Recessed Troffer w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRP	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	BRP
538	2-Brown Middle School	209	office	1	Compact Fluorescent Fixture w/ (2) 13w Compact Fluorescent Lamps & Magnetic Ballast, Surface Mounted	30	BRP	1	No Retrofit Proposed	30	BRP
539	2-Brown Middle School	h6	hall 6	6	2'x2' Surface Mounted Box w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BRH	6	No Retrofit Proposed	34	BRH
540	2-Brown Middle School	h6	hall 6	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
541	2-Brown Middle School	208	classroom	8	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts, Pendant Mounted	112	BRCR	8	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRCR
542	2-Brown Middle School	207	classroom	8	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts, Pendant Mounted	112	BRCR	8	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRCR
543	2-Brown Middle School	206	classroom	8	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts, Pendant Mounted	112	BRCR	8	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRCR
544	2-Brown Middle School	b207	boys restroom	2	2'x2' Surface Mounted Box w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BRR	2	No Retrofit Proposed	34	BRR
545	2-Brown Middle School	jc207	janitors closet	1	Compact Fluorescent Fixture w/ 13w Compact Fluorescent Lamp & Magnetic Ballast	15	BRS	1	No Retrofit Proposed	15	BRS
546	2-Brown Middle School	205	office	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	BRP	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	BRP
547	2-Brown Middle School	g207	girls restroom	3	2'x2' Surface Mounted Box w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BRR	3	No Retrofit Proposed	34	BRR
548	2-Brown Middle School	204	classroom	4	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	4	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRCR
549	2-Brown Middle School	h7	hall 7	5	2'x2' Surface Mounted Box w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BRH	5	No Retrofit Proposed	34	BRH
550	2-Brown Middle School	203	classroom	8	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	8	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRCR
551	2-Brown Middle School	203a	STORAGE	2	Compact Fluorescent Square Fixture w/ 13w Compact Fluorescent Lamp & Magnetic Ballast	15	BRS	2	No Retrofit Proposed	15	BRS
552	2-Brown Middle School	h8	hall 8	10	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BRH	10	No Retrofit Proposed	34	BRH
553	2-Brown Middle School	202	classroom	8	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRCR	8	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRCR
554	2-Brown Middle School	202a	storage	3	Compact Fluorescent Square Fixture w/ (2) 13w Compact Fluorescent Lamps & Magnetic Ballast	30	BRS	3	No Retrofit Proposed	30	BRS
555	2-Brown Middle School	202a	storage	2	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRS	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRS
556	2-Brown Middle School	202b	storage	2	Compact Fluorescent Square Fixture w/ (2) 13w Compact Fluorescent Lamps & Magnetic Ballast	30	BRS	2	No Retrofit Proposed	30	BRS
557	2-Brown Middle School	201	CLASSROOM	8	2'x4' Recessed Troffer w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	8	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	BRCR
558	2-Brown Middle School	s1	stair 1	2	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BRH	2	No Retrofit Proposed	34	BRH
559	2-Brown Middle School	s1	stair 1	2	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BRH	2	No Retrofit Proposed	34	BRH
560	2-Brown Middle School	s1	stair 1	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
561	2-Brown Middle School	s1	stair 1	3	2'x2' Surface Mounted Box w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BRH	3	No Retrofit Proposed	34	BRH
562	2-Brown Middle School	120	front lobby	8	2'x2' Recessed Troffer w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast	58	BRH	8	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	BRH
563	2-Brown Middle School	h9	hall 9	5	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRH	5	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRH

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
564	2-Brown Middle School	119g	hallway	4	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BRH	4	No Retrofit Proposed	34	BRH
565	2-Brown Middle School	119e	office	1	2'x4' Recessed Troffer w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRP	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	BRP
566	2-Brown Middle School	119d	conference room	2	2'x4' Recessed Troffer w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRM	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	BRM
567	2-Brown Middle School	119c	office	2	2'x4' Recessed Troffer w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRP	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	BRP
568	2-Brown Middle School	119b	office	1	2'x4' Recessed Troffer w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRP	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	BRP
569	2-Brown Middle School	119f	office	1	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRP	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRP
570	2-Brown Middle School	119a	office	1	2'x4' Recessed Troffer w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRP	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	BRP
571	2-Brown Middle School	119	office / lobby	4	2'x4' Recessed Troffer w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRO	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	BRO
572	2-Brown Middle School	121	classroom	4	2'x4' Recessed Troffer w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	BRCR
573	2-Brown Middle School	123	classroom	4	2'x4' Recessed Troffer w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	BRCR
574	2-Brown Middle School	122	classroom	8	2'x4' Recessed Troffer w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	8	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	BRCR
575	2-Brown Middle School	b122	boys restroom	3	2'x2' Surface Mounted Box w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BRR	3	No Retrofit Proposed	34	BRR
576	2-Brown Middle School	j122	janitor closet	1	Incandescent Fixture w/ 20w Screw-In Compact Fluorescent Lamp	20	BRS	1	No Retrofit Proposed	20	BRS
577	2-Brown Middle School	g122	girls restroom	3	2'x2' Surface Mounted Box w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BRR	3	No Retrofit Proposed	34	BRR
578	2-Brown Middle School	h10	hall 10	17	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BRH	17	No Retrofit Proposed	34	BRH
579	2-Brown Middle School	h10	hall 10	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
580	2-Brown Middle School	125	classroom	2	2'x4' Recessed Troffer w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	BRCR
581	2-Brown Middle School	124	computer lab	6	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRO	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRO
582	2-Brown Middle School	124	computer lab	2	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRO	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRO
583	2-Brown Middle School	126	computer lab	4	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRO	4	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRO
584	2-Brown Middle School	127	classroom	8	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	8	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRCR
585	2-Brown Middle School	129	classroom	8	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	8	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRCR
586	2-Brown Middle School	128	classroom	6	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRCR
587	2-Brown Middle School	128	classroom	2	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRCR
588	2-Brown Middle School	131	classroom	9	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	9	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRCR
589	2-Brown Middle School	130	classroom	9	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	9	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRCR
590	2-Brown Middle School	132	classroom	9	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	9	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRCR
591	2-Brown Middle School	133	classroom	9	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	9	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRCR
592	2-Brown Middle School	s3	stair 3	3	2' Wide Wrap Fluorescent w/ (2) FO17T8 Lamps & (1) Electronic Ballasts	34	BRH	3	No Retrofit Proposed	34	BRH
593	2-Brown Middle School	s3	stair 3	1	2'x2' Surface Mounted Box w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BRH	1	No Retrofit Proposed	34	BRH

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
594	2-Brown Middle School	s3	stair 3	2	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BRH	2	No Retrofit Proposed	34	BRH
595	2-Brown Middle School	s3	stair 3	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
596	2-Brown Middle School	h12	hall 12	2	2'x2' Recessed Flanged Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BRH	2	No Retrofit Proposed	34	BRH
597	2-Brown Middle School	h12	hall 12	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
598	2-Brown Middle School	h13	hall 13	5	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BRH	5	No Retrofit Proposed	34	BRH
599	2-Brown Middle School	h13	hall 13	1	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	1	New LED Exit Sign	2	X
600	2-Brown Middle School	h13	hall 13	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
601	2-Brown Middle School	159	classroom	4	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRCR	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRCR
602	2-Brown Middle School	159	classroom	4	2'x4' Recessed Troffer w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	BRCR	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRCR
603	2-Brown Middle School	157	classroom	8	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRCR	8	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRCR
604	2-Brown Middle School	h14	hall 14	5	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	BRH	5	New 2'x4' Recessed Troffer w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRH
605	2-Brown Middle School	155s	storage	1	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRS
606	2-Brown Middle School	s2	stair 2	1	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BRH	1	No Retrofit Proposed	34	BRH
607	2-Brown Middle School	155	library	9	8' Strip Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRO	9	Relamp & Reballast an 8' Fixture w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRO
608	2-Brown Middle School	155	library	1	8' Strip Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	BRO	1	Relamp & Reballast an 8' Fixture w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRO
609	2-Brown Middle School	155	library	2	8' Strip Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRO	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRO
610	2-Brown Middle School	155	library	3	2'x2' Recessed Troffer w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast	58	BRO	3	New 2'x2' Air Handling Unit Troffer w/ (2) F17T8 Lamps & (1) 2/17 Elec. Normal-Power HE Ballast, Parabolic Lenses,	30	BRO
611	2-Brown Middle School	155	library	2	8' Strip Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRO	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRO
612	2-Brown Middle School	155	library	15	Compact Fluorescent Recessed Fixture w/ (2) 13w Compact Fluorescent Lamps & Magnetic Ballast	30	BRO	15	No Retrofit Proposed	30	BRO
613	2-Brown Middle School	155	library	4	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser, Battery Backup	88	BRO	4	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast & 1 Battery Backup	63	BRO
614	2-Brown Middle School	155	library	19	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	BRO	19	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	BRO
615	2-Brown Middle School	155	library	3	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	3	New LED Exit Sign	2	X
616	2-Brown Middle School	153a	office	6	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	BRO	6	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	BRO
617	2-Brown Middle School	153a	office	5	Incandescent Recessed Fixture w/ (1) 65w Incandescent ER or BR Lamp, Dimmer Controlled	65	BRO	5	No Retrofit Proposed	65	BRO
618	2-Brown Middle School	153b	book storage	4	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	BRS	4	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	BRS
619	2-Brown Middle School	153c	computers	3	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, 4-Lamp Fixture Delamped to 2	58	BRO	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	BRO
620	2-Brown Middle School	153c	computers	6	Incandescent Fixture w/ (1) 120w Incandescent ER or BR Flood Lamp, Dimmer Controlled	120	BRO	6	No Retrofit Proposed	120	BRO
621	2-Brown Middle School	h15	hall 15	3	Exit Sign w/ LED	2	X	3	No Retrofit Proposed	2	X
622	2-Brown Middle School	h15	hall 15	3	Incandescent Recessed Fixture w/ (1) 75w Incandescent Lamp	75	BRH	3	Relamp w/ (1) 19 watt Compact Fluorescent Screw-In	19	BRH
623	2-Brown Middle School	h15	hall 15	2	4' Strip Fluorescent w/ (1) F40T12/34w Lamp & (1) Energy Efficient Magnetic Ballast	42	BRH	2	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	BRH

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
624	2-Brown Middle School	h15	hall 15	1	6' Strip Fluorescent w/ (2) F25T8 Lamps & (1) Electronic Ballasts	46	BRH	1	No Retrofit Proposed	46	BRH
625	2-Brown Middle School	h15	hall 15	4	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRH	4	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRH
626	2-Brown Middle School	h15	hall 15	1	8' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRH	1	Relamp & Reballast an 8' Fixture w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRH
627	2-Brown Middle School	h15	hall 15	3	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BRH	3	No Retrofit Proposed	34	BRH
628	2-Brown Middle School	158a	hall	1	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	BRH	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	BRH
629	2-Brown Middle School	158	classroom	4	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	BRCR	4	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	BRCR
630	2-Brown Middle School	158	classroom	2	Incandescent Recessed Fixture w/ (1) 65w Incandescent ER or BR Lamp, Dimmer Controlled	65	BRCR	2	No Retrofit Proposed	65	BRCR
631	2-Brown Middle School	158a	computers	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	BRO	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	BRO
632	2-Brown Middle School	158b	office	4	Incandescent Recessed Fixture w/ (1) 75w Incandescent Lamp, Dimmer Controlled	75	BRP	4	Relamp w/ (1) 15 watt Compact Fluorescent Dimmable Screw-In	15	BRP
633	2-Brown Middle School	156	classroom	6	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	BRCR	6	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	BRCR
634	2-Brown Middle School	156	classroom	8	Incandescent Track Fixture w/ (1) 75w Incandescent Lamp, Dimmer Controlled	75	BRCR	8	No Retrofit Proposed	75	BRCR
635	2-Brown Middle School	156	classroom	1	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	1	New LED Exit Sign	2	X
636	2-Brown Middle School	e17	exit 17	1	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	1	New LED Exit Sign	2	X
637	2-Brown Middle School	e17	exit 17	1	Compact Fluorescent Jelly Jar Fixture w/ (1) 20w Compact Fluorescent Lamp & Magnetic Ballast	22	BRH	1	No Retrofit Proposed	22	BRH
638	2-Brown Middle School	154	break room	2	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRM	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRM
639	2-Brown Middle School	h16	hall 16	2	2'x2' Surface Mounted Box w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BRH	2	No Retrofit Proposed	34	BRH
640	2-Brown Middle School	h16	hall 16	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
641	2-Brown Middle School	152	classroom	4	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	4	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRCR
642	2-Brown Middle School	152	classroom	2	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRCR	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRCR
643	2-Brown Middle School	147	classroom	12	1'x3' Recessed Troffer w/ (2) F25T8 Lamp & (1) Electronic Ballast	46	BRCR	12	No Retrofit Proposed	46	BRCR
644	2-Brown Middle School	150	classroom	4	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	4	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRCR
645	2-Brown Middle School	150	classroom	2	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRCR	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRCR
646	2-Brown Middle School	b150	boys restroom	3	2'x2' Surface Mounted Box w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BRR	3	No Retrofit Proposed	34	BRR
647	2-Brown Middle School	g150	girls restroom	3	2'x2' Surface Mounted Box w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BRR	3	No Retrofit Proposed	34	BRR
648	2-Brown Middle School	j150	janitors closet	1	Compact Fluorescent Fixture w/ 13w Compact Fluorescent Lamp & Magnetic Ballast	15	BRS	1	No Retrofit Proposed	15	BRS
649	2-Brown Middle School	148	classroom	10	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	10	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRCR
650	2-Brown Middle School	w150	womens restroom	1	2'x2' Surface Mounted Box w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BRR	1	No Retrofit Proposed	34	BRR
651	2-Brown Middle School	m150	mens restroom	1	2'x2' Surface Mounted Box w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BRR	1	No Retrofit Proposed	34	BRR
652	2-Brown Middle School	h17	hall 17	7	2'x2' Surface Mounted Box w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BRH	7	No Retrofit Proposed	34	BRH
653	2-Brown Middle School	h17	hall 17	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
654	2-Brown Middle School	s3	stair 3	4	2'x2' Surface Mounted Box w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BRH	4	No Retrofit Proposed	34	BRH
655	2-Brown Middle School	h18	hall 18	7	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRH	7	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRH
656	2-Brown Middle School	h18	hall 18	3	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Battery Backup	58	BRH	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 1/32 Elec. Low-Power HE Ballast, & (1) Battery Backup 1-Lamp HE Ballast	42	BRH
657	2-Brown Middle School	h18	hall 18	3	Exit Sign w/ LED	2	X	3	No Retrofit Proposed	2	X
658	2-Brown Middle School	h19	hall 19	5	2'x2' Recessed Troffer w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast	58	BRH	5	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	BRH
659	2-Brown Middle School	146a	classroom	16	2'x2' Recessed Troffer w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast	58	BRCR	16	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	BRCR
660	2-Brown Middle School	146b	classroom	12	2'x2' Recessed Troffer w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast	58	BRCR	12	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	BRCR
661	2-Brown Middle School	144	work room	9	8' Industrial Hood w/ (4) FO32T8 Lamps & (1) Electronic Ballast	112	BRO	9	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRO
662	2-Brown Middle School	140	classroom	15	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRCR	15	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRCR
663	2-Brown Middle School	142	shop	9	8' Industrial Hood w/ (4) FO32T8 Lamps & (1) Electronic Ballast	112	BRO	9	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRO
664	2-Brown Middle School	138	home ec room	25	2'x2' Recessed Troffer w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast	58	BRO	25	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	BRO
665	2-Brown Middle School	138s1	storage	1	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	BRS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRS
666	2-Brown Middle School	138s2	storage	1	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	BRS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRS
667	2-Brown Middle School	138s2	storage	1	Compact Fluorescent Fixture w/ (2) 13w Compact Fluorescent Lamps & Magnetic Ballast, Surface Mounted	30	BRS	1	No Retrofit Proposed	30	BRS
668	2-Brown Middle School	h20	hall 20	6	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRH	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRH
669	2-Brown Middle School	136	classroom	9	4' Wide Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRCR	9	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRCR
670	2-Brown Middle School	136a	office	2	1'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRP	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRP
671	2-Brown Middle School	136b	storage	2	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRS	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRS
672	2-Brown Middle School	s5	stair 5	4	Compact Fluorescent Drum Fixture w/ (2) 13w Compact Fluorescent Lamp & Magnetic Ballast	30	BRH	4	No Retrofit Proposed	30	BRH
673	2-Brown Middle School	300	boiler room	22	Compact Fluorescent Poker Hat Fixture w/ (1) 20w Compact Fluorescent Lamp & Magnetic Ballast	22	BRS	22	No Retrofit Proposed	22	BRS
674	2-Brown Middle School	300	boiler room	7	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRS	7	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRS
675	2-Brown Middle School	301	stairs	4	Compact Fluorescent Drum Fixture w/ (2) 13w Compact Fluorescent Lamp & Magnetic Ballast	30	BRH	4	No Retrofit Proposed	30	BRH
676	2-Brown Middle School	302	storage	1	Compact Fluorescent Poker Hat Fixture w/ (1) 20w Compact Fluorescent Lamp & Magnetic Ballast	22	BRS	1	No Retrofit Proposed	22	BRS
677	2-Brown Middle School	303	storage	1	Compact Fluorescent Poker Hat Fixture w/ (1) 20w Compact Fluorescent Lamp & Magnetic Ballast	22	BRS	1	No Retrofit Proposed	22	BRS
678	2-Brown Middle School	304	mech room	4	Compact Fluorescent Poker Hat Fixture w/ (1) 20w Compact Fluorescent Lamp & Magnetic Ballast	22	BRS	4	No Retrofit Proposed	22	BRS
679	2-Brown Middle School	305	storage	3	Compact Fluorescent Poker Hat Fixture w/ (1) 20w Compact Fluorescent Lamp & Magnetic Ballast	22	BRS	3	No Retrofit Proposed	22	BRS
680	2-Brown Middle School	306	mech room	2	Compact Fluorescent Poker Hat Fixture w/ (1) 20w Compact Fluorescent Lamp & Magnetic Ballast	22	BRS	2	No Retrofit Proposed	22	BRS
681	2-Brown Middle School	307	hall	3	Compact Fluorescent Poker Hat Fixture w/ (1) 20w Compact Fluorescent Lamp & Magnetic Ballast	22	BRH	3	No Retrofit Proposed	22	BRH
682	2-Brown Middle School	308	storage	8	Incandescent Poker Hat Fixture w/ (1) 150w Incandescent Lamp	150	BRS	8	Relamp w/ (1) 30 watt Compact Fluorescent Screw-In, 1" Socket Extender	30	BRS
683	2-Brown Middle School	136a	storage	1	Compact Fluorescent Fixture w/ (2) 13w Compact Fluorescent Lamps & Magnetic Ballast, Surface Mounted	30	BRS	1	No Retrofit Proposed	30	BRS

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
684	2-Brown Middle School	s6	stair 6	1	2'x2' Recessed Troffer w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast	58	BRH	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	BRH
685	2-Brown Middle School	134	storage	6	Incandescent Bare Socket Fixture w/ (1) 52w Incandescent Lamp	52	BRS	6	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	BRS
686	2-Brown Middle School	134	music room	15	4' Wide Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRCR	15	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRCR
687	2-Brown Middle School	h21	hall 21	2	2'x2' Recessed Troffer w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast , Parabolic Diffuser	58	BRH	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast, Parabolic Diffuser	45	BRH
688	2-Brown Middle School	h21	hall 21	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
689	2-Brown Middle School	134a	storage	1	Compact Fluorescent Fixture w/ (2) 13w Compact Fluorescent Lamps & Magnetic Ballast, Surface Mounted	30	BRS	1	No Retrofit Proposed	30	BRS
690	2-Brown Middle School	134h	storage	3	Compact Fluorescent Fixture w/ (2) 13w Compact Fluorescent Lamps & Magnetic Ballast, Surface Mounted	30	BRS	3	No Retrofit Proposed	30	BRS
691	2-Brown Middle School	134b	storage	1	Compact Fluorescent Fixture w/ (2) 13w Compact Fluorescent Lamps & Magnetic Ballast, Surface Mounted	30	BRS	1	No Retrofit Proposed	30	BRS
692	2-Brown Middle School	134c	mens restroom	3	4' Wide Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRR	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRR
693	2-Brown Middle School	134d	storage	2	Compact Fluorescent Fixture w/ (2) 13w Compact Fluorescent Lamps & Magnetic Ballast, Surface Mounted	30	BRS	2	No Retrofit Proposed	30	BRS
694	2-Brown Middle School	134e	storage	1	2'x2' Surface Mounted Box w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BRS	1	No Retrofit Proposed	34	BRS
695	2-Brown Middle School	134f	storage	1	2'x2' Surface Mounted Box w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BRS	1	No Retrofit Proposed	34	BRS
696	2-Brown Middle School	134g	storage	2	2'x2' Surface Mounted Box w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BRS	2	No Retrofit Proposed	34	BRS
697	2-Brown Middle School	118a	womens restroom	2	4' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRR	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power HE Ballast, Outboard Lamps Only	48	BRR
698	2-Brown Middle School	h22	hall 22	4	2'x2' Recessed Troffer w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast , Parabolic Diffuser, Air Handling Unit	58	BRH	4	New 2'x2' Air Handling Unit Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power HE Ballast, Parabolic Diffuser	45	BRH
699	2-Brown Middle School	h22	hall 22	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
700	2-Brown Middle School	h23	hall 23	6	2'x2' Recessed Troffer w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast , Parabolic Diffuser, Air Handling Unit	58	BRH	6	New 2'x2' Air Handling Unit Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power HE Ballast, Parabolic Diffuser	45	BRH
701	2-Brown Middle School	h23	hall 23	2	Exit Sign w/ LED	2	X	2	No Retrofit Proposed	2	X
702	2-Brown Middle School	116	office	2	1'x8' Recessed Troffer w/ (4) FO32T8 Lamps & (1) Electronic Ballast	112	BRP	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRP
703	2-Brown Middle School	h24	hall 24	1	Compact Fluorescent Recessed Fixture w/ (1) 20w Compact Fluorescent Lamp & Magnetic Ballast	22	BRH	1	No Retrofit Proposed	22	BRH
704	2-Brown Middle School	116br	restroom	1	Compact Fluorescent Recessed Fixture w/ (1) 20w Compact Fluorescent Lamp & Magnetic Ballast	22	BRR	1	No Retrofit Proposed	22	BRR
705	2-Brown Middle School	114	conference room	4	1'x8' Recessed Troffer w/ (4) FO32T8 Lamps & (1) Electronic Ballast	112	BRM	4	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRM
706	2-Brown Middle School	112	copy room	2	1'x8' Recessed Troffer w/ (4) FO32T8 Lamps & (1) Electronic Ballast	112	BRO	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRO
707	2-Brown Middle School	h25	hall 25	8	2' Wide Wrap Fluorescent w/ (2) FO17T8 Lamps & (1) Electronic Ballasts	34	BRH	8	No Retrofit Proposed	34	BRH
708	2-Brown Middle School	106a	hall	4	4' Wrap Fluorescent w/ (1) F32T8 Lamp & (1) Electronic Ballast	32	BRH	4	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	BRH
709	2-Brown Middle School	106b	girls locker room	10	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRR	10	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRR
710	2-Brown Middle School	106b	girls locker room	8	4' Wrap Fluorescent w/ (1) F32T8 Lamp & (1) Electronic Ballast	32	BRR	8	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	BRR
711	2-Brown Middle School	106c	girls restroom	1	4' Wrap Fluorescent w/ (1) F32T8 Lamp & (1) Electronic Ballast	32	BRR	1	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	BRR
712	2-Brown Middle School	106d	office	1	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRP	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRP
713	2-Brown Middle School	106d	office restroom	1	4' Wrap Fluorescent w/ (1) F32T8 Lamp & (1) Electronic Ballast	32	BRR	1	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	BRR

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
714	2-Brown Middle School	106e	girls showers	6	Compact Fluorescent Fixture w/ (2) 13w Compact Fluorescent Lamps & Magnetic Ballast, Surface Mounted	30	BRR	6	No Retrofit Proposed	30	BRR
715	2-Brown Middle School	h26	hall 26	2	2' Wide Wrap Fluorescent w/ (2) FO17T8 Lamps & (1) Electronic Ballasts	34	BRH	2	No Retrofit Proposed	34	BRH
716	2-Brown Middle School	106f	storage	1	Incandescent Fixture w/ 13w Screw-In Compact Fluorescent Lamp	13	BRS	1	No Retrofit Proposed	13	BRS
717	2-Brown Middle School	106g	storage	1	Incandescent Fixture w/ 13w Screw-In Compact Fluorescent Lamp	13	BRS	1	No Retrofit Proposed	13	BRS
718	2-Brown Middle School	e10	entry 10	1	2' Wide Wrap Fluorescent w/ (2) FO17T8 Lamps & (1) Electronic Ballasts	34	BRH	1	No Retrofit Proposed	34	BRH
719	2-Brown Middle School	e10	entry 10	1	Compact Fluorescent Recessed Fixture w/ (2) 13w Compact Fluorescent Lamps & Magnetic Ballast	30	BRH	1	No Retrofit Proposed	30	BRH
720	2-Brown Middle School	106f	storage	1	Compact Fluorescent Poker Hat Fixture w/ (1) 20w Compact Fluorescent Lamp & Magnetic Ballast	22	BRS	1	No Retrofit Proposed	22	BRS
721	2-Brown Middle School	106	gym	24	Gymnasium Fixture w/ (3) F54T5 HO Lamp & (1) Electronic Ballast, Poly Lens	190	BRGYM	24	No Retrofit Proposed	190	BRGYM
722	2-Brown Middle School	106	gym	5	Exit Sign w/ (2) 25 Watt Incandescent Lamps	50	X	5	New LED Exit Sign, with Wire Guard	2	X
723	2-Brown Middle School	106i	weight room	3	4' Wrap Fluorescent w/ (1) F32T8 Lamp & (1) Electronic Ballast	32	BRGYM	3	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	BRGYM
724	2-Brown Middle School	106i	weight room	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRGYM	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRGYM
725	2-Brown Middle School	h27	hall 27	2	Compact Fluorescent Recessed Fixture w/ 13w Compact Fluorescent Lamp & Magnetic Ballast	15	BRH	2	No Retrofit Proposed	15	BRH
726	2-Brown Middle School	108a	boys locker room	8	8' Industrial Hood w/ (4) FO32T8 Lamps & (1) Electronic Ballast	112	BRR	8	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRR
727	2-Brown Middle School	108a	boys locker room	2	4' Wrap Fluorescent w/ (1) F32T8 Lamp & (1) Electronic Ballast	32	BRR	2	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	BRR
728	2-Brown Middle School	108b	boys restroom	1	Compact Fluorescent Fixture w/ (2) 13w Compact Fluorescent Lamps & Magnetic Ballast, Surface Mounted	30	BRR	1	No Retrofit Proposed	30	BRR
729	2-Brown Middle School	108c	showers	2	Compact Fluorescent Fixture w/ (2) 13w Compact Fluorescent Lamps & Magnetic Ballast, Surface Mounted	30	BRR	2	No Retrofit Proposed	30	BRR
730	2-Brown Middle School	108d	lockers	3	4' Wrap Fluorescent w/ (1) F32T8 Lamp & (1) Electronic Ballast	32	BRR	3	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	BRR
731	2-Brown Middle School	108e	office	1	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRP	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRP
732	2-Brown Middle School	108f	restroom	1	Compact Fluorescent Fixture w/ (2) 13w Compact Fluorescent Lamps & Magnetic Ballast, Surface Mounted	30	BRR	1	No Retrofit Proposed	30	BRR
733	2-Brown Middle School	108g	storage	2	Compact Fluorescent Drum Fixture w/ (2) 13w Compact Fluorescent Lamp & Magnetic Ballast	30	BRS	2	No Retrofit Proposed	30	BRS
734	2-Brown Middle School	108g	storage	1	Compact Fluorescent Poker Hat Fixture w/ (1) 20w Compact Fluorescent Lamp & Magnetic Ballast	22	BRS	1	No Retrofit Proposed	22	BRS
735	2-Brown Middle School	h28	hall 28	3	2' Wide Wrap Fluorescent w/ (2) FO17T8 Lamps & (1) Electronic Ballasts	34	BRH	3	No Retrofit Proposed	34	BRH
736	2-Brown Middle School	h28	hall 28	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
737	2-Brown Middle School	300	storage	3	Compact Fluorescent Drum Fixture w/ (2) 13w Compact Fluorescent Lamp & Magnetic Ballast	30	BRS	3	No Retrofit Proposed	30	BRS
738	2-Brown Middle School	300	storage	1	Compact Fluorescent Poker Hat Fixture w/ (1) 20w Compact Fluorescent Lamp & Magnetic Ballast	22	BRS	1	No Retrofit Proposed	22	BRS
739	2-Brown Middle School	300a	break room	1	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRM	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRM
740	2-Brown Middle School	105a	hall	6	4' Wrap Fluorescent w/ (1) F32T8 Lamp & (1) Electronic Ballast	32	BRH	6	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	BRH
741	2-Brown Middle School	105b	storage	1	1'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRS
742	2-Brown Middle School	105c	office	1	1'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRP	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRP
743	2-Brown Middle School	105d	hall	1	4' Wrap Fluorescent w/ (1) F32T8 Lamp & (1) Electronic Ballast	32	BRH	1	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	BRH

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
744	2-Brown Middle School	105e	restroom	1	4' Wrap Fluorescent w/ (1) F32T8 Lamp & (1) Electronic Ballast	32	BRR	1	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	BRR
745	2-Brown Middle School	105f	storage	2	4' Wrap Fluorescent w/ (1) F32T8 Lamp & (1) Electronic Ballast	32	BRS	2	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	BRS
746	2-Brown Middle School	105	kitchen	12	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRO	12	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRO
747	2-Brown Middle School	105g	jc closet	1	Compact Fluorescent Wall Mounted Fixture w/ (2) 13w Compact Fluorescent Lamps & Magnetic Ballast	30	BRS	1	No Retrofit Proposed	30	BRS
748	2-Brown Middle School	107	cafeteria	35	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRO	35	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRO
749	2-Brown Middle School	107	cafeteria	2	Exit Sign w/ LED	2	X	2	No Retrofit Proposed	2	X
750	2-Brown Middle School	107a	cafeteria	12	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRO	12	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRO
751	2-Brown Middle School	107a	cafeteria	1	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	1	New LED Exit Sign	2	X
752	2-Brown Middle School	107a	boys restroom	1	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRR	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRR
753	2-Brown Middle School	107b	storage	1	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRS
754	2-Brown Middle School	107c	girl's restroom	1	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRR	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRR
755	2-Brown Middle School	107d	lobby	12	2' Wide Wrap Fluorescent w/ (2) FO17T8 Lamps & (1) Electronic Ballasts	34	BRH	12	No Retrofit Proposed	34	BRH
756	2-Brown Middle School	107d	lobby	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
757	2-Brown Middle School	109	break room	2	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRM	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRM
758	2-Brown Middle School	111	classroom	4	1'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRCR	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRCR
759	2-Brown Middle School	113h	hall	1	1'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRH
760	2-Brown Middle School	113a	restroom	1	Compact Fluorescent Drum Fixture w/ (2) 13w Compact Fluorescent Lamp & Magnetic Ballast	30	BRR	1	No Retrofit Proposed	30	BRR
761	2-Brown Middle School	113a	office	1	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRP	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRP
762	2-Brown Middle School	115h	hall	1	1'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRH
763	2-Brown Middle School	115a	restroom	1	Compact Fluorescent Drum Fixture w/ (2) 13w Compact Fluorescent Lamp & Magnetic Ballast	30	BRR	1	No Retrofit Proposed	30	BRR
764	2-Brown Middle School	115	office	1	1'x8' Recessed Troffer w/ (4) FO32T8 Lamps & (1) Electronic Ballast	112	BRP	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRP
765	2-Brown Middle School	116	nurses office	2	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRO	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRO
766	2-Brown Middle School	116a	restroom	1	Compact Fluorescent Fixture w/ (2) 13w Compact Fluorescent Lamps & Magnetic Ballast, Surface Mounted	30	BRR	1	No Retrofit Proposed	30	BRR
767	2-Brown Middle School	116b	rest area	1	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRR	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRR
768	2-Brown Middle School	116c	restroom	1	Compact Fluorescent Fixture w/ (2) 13w Compact Fluorescent Lamps & Magnetic Ballast, Surface Mounted	30	BRR	1	No Retrofit Proposed	30	BRR
769	2-Brown Middle School	116d	rest area	1	1'x8' Recessed Troffer w/ (4) FO32T8 Lamps & (1) Electronic Ballast	112	BRR	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRR
770	2-Brown Middle School	117	mail room	1	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRO	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRO
771	2-Brown Middle School	118	front office	9	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRO	9	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRO
772	2-Brown Middle School	118a	vault	1	4' Wrap Fluorescent w/ (1) F32T8 Lamp & (1) Electronic Ballast	32	BRS	1	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	BRS
773	2-Brown Middle School	118b	office	1	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRP	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRP

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
774	2-Brown Middle School	118c	supplies storage	1	4' Strip Fluorescent w/ (1) F40T12/34w Lamp & (1) Energy Efficient Magnetic Ballast	42	BRS	1	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	BRS
775	2-Brown Middle School	118d	restroom	1	Compact Fluorescent Recessed Fixture w/ 13w Compact Fluorescent Lamp & Magnetic Ballast	15	BRR	1	No Retrofit Proposed	15	BRR
776	2-Brown Middle School	118e	office	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRP	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRP
777	2-Brown Middle School	118f	restroom	1	Compact Fluorescent Recessed Fixture w/ 13w Compact Fluorescent Lamp & Magnetic Ballast	15	BRR	1	No Retrofit Proposed	15	BRR
778	2-Brown Middle School	199	auditorium	14	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRM	20	New 8' Indirect Uplight Fixture w/ (4) F54T5HO Lamps & (2) 2/54 T5 Elec. HO Ballast	234	BRM
779	2-Brown Middle School	199	auditorium	2	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Wall Mounted	58	BRM	2	New 8' Indirect Uplight Fixture w/ (4) F54T5HO Lamps & (2) 2/54 T5 Elec. HO Ballast	234	BRM
780	2-Brown Middle School	199	auditorium	6	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRM	8	New 8' Indirect Uplight Fixture w/ (4) F54T5HO Lamps & (2) 2/54 T5 Elec. HO Ballast	234	BRM
781	2-Brown Middle School	198	stage	8	Incandescent High Hat Fixture w/ (1) 90w PAR38 Incandescent Lamp	90	BRS	8	No Retrofit Proposed	90	BRS
782	2-Brown Middle School	198	stage	2	Incandescent High Hat Fixture w/ (1) 90w PAR38 Incandescent Lamp	90	BRS	2	No Retrofit Proposed	90	BRS
783	2-Brown Middle School	139	CLASSROOM	4	2'x4' Recessed Troffer w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	BRCR
784	2-Brown Middle School	146B	INDUSTRIAL PARTS	5	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRO	5	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BRO
785	2-Brown Middle School	150D	COPY ROOM	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRO	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRO
786	2-Brown Middle School	137	CLASSROOM	6	2'x4' Recessed Troffer w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	BRCR
787	2-Brown Middle School	135	CLASSROOM	6	2'x4' Recessed Troffer w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BRCR	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	BRCR
788	2-Brown Middle School	H29	HALL 29	9	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRH	9	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRH
789	2-Brown Middle School	H29	HALL 29	2	Exit Sign w/ LED	2	X	2	No Retrofit Proposed	2	X
790	2-Brown Middle School	EXT	ENTRANCE OVERHANG	16	Compact Fluorescent Recessed Fixture w/ 13w Compact Fluorescent Lamp & Magnetic Ballast	15	E	16	No Retrofit Proposed	15	E
791	2-Brown Middle School	EXT	BLDG EXTERIOR	2	HID Wall Mounted Fixture w/ (1) 150w High Pressure Sodium	190	E	2	No Retrofit Proposed	190	E
792	2-Brown Middle School	EXT	DOOR OVERHANGS	6	Compact Fluorescent Recessed Fixture w/ (1) 20w Compact Fluorescent Lamp & Magnetic Ballast	22	E	6	No Retrofit Proposed	22	E
793	2-Brown Middle School	EXT	BLDG EXTERIOR	2	Incandescent Recessed 12"x12" Fixture w/ (1) 52w Incandescent Lamp	52	E	2	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	E
794	2-Brown Middle School	EXT	BLDG EXTERIOR	9	HID Fixture w/ (1) 150w High Pressure Sodium	190	E	9	No Retrofit Proposed	190	E
795	2-Brown Middle School	m231	Mechanical Room	1	Incandescent Fixture w/ 13w Screw-In Compact Fluorescent Lamp	13	BRS	1	No Retrofit Proposed	13	BRS
796	2-Brown Middle School	155	Storage	3	4' Industrial Hood w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRS	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRS
797	2-Brown Middle School	155	Storage	1	4' Industrial Hood w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRS
798	2-Brown Middle School	109A	Storage	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRS	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRS
799	2-Brown Middle School	114a		2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BRS	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BRS
800	1-Bigelow Middle School	203a	stairs	5	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BIH	5	No Retrofit Proposed	34	BIH
801	1-Bigelow Middle School	203a	stairs	1	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	1	No Retrofit Proposed	30	X
802	1-Bigelow Middle School	203	class	6	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BICR	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BICR
803	1-Bigelow Middle School	201	class	2	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BICR	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BICR

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
804	1-Bigelow Middle School	202	class	6	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BICR	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BICR
805	1-Bigelow Middle School	204	class	6	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BICR	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BICR
806	1-Bigelow Middle School	206	class	6	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BICR	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BICR
807	1-Bigelow Middle School	208	class	6	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BICR	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BICR
808	1-Bigelow Middle School	210	class	6	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BICR	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BICR
809	1-Bigelow Middle School	212	class	6	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BICR	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BICR
810	1-Bigelow Middle School	214	class	6	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BICR	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BICR
811	1-Bigelow Middle School	213	class	5	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BICR	5	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BICR
812	1-Bigelow Middle School	211	class	6	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BICR	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BICR
813	1-Bigelow Middle School	209	class	5	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BICR	5	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BICR
814	1-Bigelow Middle School	209	class	1	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BICR	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BICR
815	1-Bigelow Middle School	209	boys restroom	2	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BIR	2	No Retrofit Proposed	34	BIR
816	1-Bigelow Middle School	209a	janitor closet	1	Incandescent Bare Socket Fixture w/ (1) 52w Incandescent Lamp	52	BIS	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	BIS
817	1-Bigelow Middle School	h1	hall 1	13	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast, Emergency Lights	88	BIH	13	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast, Outboard Lamps Only	42	BIH
818	1-Bigelow Middle School	h1	hall 1	1	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BIH	1	No Retrofit Proposed	34	BIH
819	1-Bigelow Middle School	h1	hall 1	2	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	2	No Retrofit Proposed	30	X
820	1-Bigelow Middle School	209b	girls restroom	3	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BIR	3	No Retrofit Proposed	34	BIR
821	1-Bigelow Middle School	209c	faculty restroom	1	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BIR	1	No Retrofit Proposed	34	BIR
822	1-Bigelow Middle School	207	classroom	4	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BICR	4	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BICR
823	1-Bigelow Middle School	207	classroom	2	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BICR	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BICR
824	1-Bigelow Middle School	207a	storage	1	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BIS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BIS
825	1-Bigelow Middle School	205	classroom	6	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BICR	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BICR
826	1-Bigelow Middle School	214a	stairs	2	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BIH	2	No Retrofit Proposed	34	BIH
827	1-Bigelow Middle School	214a	stairs	1	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BIH	1	No Retrofit Proposed	34	BIH
828	1-Bigelow Middle School	214a	stairs	1	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	1	No Retrofit Proposed	30	X
829	1-Bigelow Middle School	215	classroom	6	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BICR	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BICR
830	1-Bigelow Middle School	216	classroom	3	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BICR	3	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BICR
831	1-Bigelow Middle School	216	classroom	3	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BICR	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BICR
832	1-Bigelow Middle School	215a	hall 2	7	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast, Emergency Lights	88	BIH	7	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast, Outboard Lamps Only	42	BIH
833	1-Bigelow Middle School	215a	hall 2	1	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BIH	1	No Retrofit Proposed	34	BIH

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
834	1-Bigelow Middle School	215a	hall 2	2	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	2	No Retrofit Proposed	30	X
835	1-Bigelow Middle School	217	classroom	6	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BICR	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BICR
836	1-Bigelow Middle School	218	classroom	6	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BICR	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BICR
837	1-Bigelow Middle School	218a	hall 3	5	2'x2' Recessed Troffer w/ (2) F20T12 Lamps & (1) Standard Magnetic Ballast	56	BIH	5	New 2'x2' Recessed Troffer w/ (2) F17T8 Lamps & (1) 2/17 Elec. Normal-Power High Efficiency Ballast	30	BIH
838	1-Bigelow Middle School	218a	hall 3	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
839	1-Bigelow Middle School	218a	hall 3	1	1'x2' Recessed Troffer w/ (2) F20T12 Lamps & (1) Standard Ballast	56	BIH	1	Relamp & Reballast w/ (2) F17T8 Lamps & (1) 2/17 Elec. Low-Power High Efficiency Ballast	28	BIH
840	1-Bigelow Middle School	218b	custodian office	2	Incandescent Recessed Fixture w/ (1) 52w Incandescent Lamp	52	BIP	2	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	BIP
841	1-Bigelow Middle School	219	boys locker room	25	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	BIR	25	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	BIR
842	1-Bigelow Middle School	219	boys locker room	3	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BIR	3	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BIR
843	1-Bigelow Middle School	219	boys locker room	2	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	2	No Retrofit Proposed	30	X
844	1-Bigelow Middle School	219	boys locker room	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
845	1-Bigelow Middle School	219a	locker room office	1	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BIP	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BIP
846	1-Bigelow Middle School	219e	stair 10	3	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BIH	3	No Retrofit Proposed	34	BIH
847	1-Bigelow Middle School	219e	stair 10	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
848	1-Bigelow Middle School	150	gymnasium	30	HID Gymnasium Fixture w/ (1) 250w Metal Halide Lamp & Ballast	295	BIGYM	30	New Big Gym Fixture w/ (3) F54T5HO Lamps & (2) 2/54 T5 Elec. HO Ballasts, Pendant Mount	185	BIGYM
849	1-Bigelow Middle School	150	gymnasium	8	Exit Sign w/ (2) 20 Watt Incandescent Lamps, Wire Guard	40	X	8	New LED Exit Sign, with Wire Guard	2	X
850	1-Bigelow Middle School	150a	gym storage	3	Incandescent Bare Lamp Fixture w/ (1) 90w Incandescent Lamp	90	BIS	3	Relamp w/ (1) 19 watt Compact Fluorescent Screw-In	19	BIS
851	1-Bigelow Middle School	150b	gym storage	1	Incandescent Bare Lamp Fixture w/ (1) 90w Incandescent Lamp	90	BIS	1	Relamp w/ (1) 19 watt Compact Fluorescent Screw-In	19	BIS
852	1-Bigelow Middle School	116	girls locker room	2	Exit Sign w/ LED	2	X	2	No Retrofit Proposed	2	X
853	1-Bigelow Middle School	116	girls locker room	5	Incandescent Fixture w/ (1) 52w Incandescent Lamp	52	BIR	5	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	BIR
854	1-Bigelow Middle School	116	girls locker room	2	4' Vanity Luminaire w/ (1) F40T12/34w Lamp & (1) Energy Efficient Magnetic Ballast	42	BIR	2	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	BIR
855	1-Bigelow Middle School	116	girls locker room	13	2'x2' Surface Mounted Box w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast	58	BIR	13	New 2'x2' Surface Mount Box w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	BIR
856	1-Bigelow Middle School	116a	locker room office	1	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BIP	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BIP
857	1-Bigelow Middle School	116b	hall 4	7	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	BIH	7	Relamp & Reballast w/ (2) F17T8 Lamps & (1) 2/17 Elec. Normal-Power High Efficiency Ballast, 2'x2' White Reflector Kit	30	BIH
858	1-Bigelow Middle School	116b	hall 4	7	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	BIH	7	Relamp & Reballast w/ (2) F17T8 Lamps & (1) 2/17 Elec. Normal-Power High Efficiency Ballast, 2'x2' White Reflector Kit	30	BIH
859	1-Bigelow Middle School	116b	hall 4	3	Incandescent Recessed Fixture w/ (1) 90w Incandescent Lamp	90	BIH	3	Relamp w/ (1) 19 watt Compact Fluorescent Screw-In	19	BIH
860	1-Bigelow Middle School	116b	hall 4	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
861	1-Bigelow Middle School	116b	hall 4	1	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	1	No Retrofit Proposed	30	X
862	1-Bigelow Middle School	117b	restroom	1	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	BIR	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	BIR
863	1-Bigelow Middle School	118a	hall 5	4	Incandescent Recessed 12"x12" Fixture w/ (1) 52w Incandescent Lamp	52	BIH	2	New 8' Wide Wrap Fixture w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BIH

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
864	1-Bigelow Middle School	118a	hall 5	1	Incandescent Surface Mounted Fixture w/ (1) 52w 130v Incandescent Lamp	46	BIH	1	New 4' Wide Wrap Fixture w/ (1) F28T8 Lamp & (1) 1/32 Elec. Normal-Power High Efficiency Ballast	25	BIH
865	1-Bigelow Middle School	118a	hall 5	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
866	1-Bigelow Middle School	114a	womens restroom	1	2' Wide Wrap Fluorescent w/ (2) FO17T8 Lamps & (1) Electronic Ballasts	34	BIR	1	No Retrofit Proposed	34	BIR
867	1-Bigelow Middle School	114a	womens restroom	1	2' Wide Wrap Fluorescent w/ (2) FO17T8 Lamps & (1) Electronic Ballasts	34	BIR	1	No Retrofit Proposed	34	BIR
868	1-Bigelow Middle School	114b	mens restroom	1	4' Wide Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BIR	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BIR
869	1-Bigelow Middle School	114b	mens restroom	1	2' Wide Wrap Fluorescent w/ (2) FO17T8 Lamps & (1) Electronic Ballasts	34	BIR	1	No Retrofit Proposed	34	BIR
870	1-Bigelow Middle School	114c	janitor closet	2	Incandescent Bare Socket Fixture w/ (1) 52w Incandescent Lamp	52	BIS	2	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	BIS
871	1-Bigelow Middle School	118a	storage room	1	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BIS	1	No Retrofit Proposed	34	BIS
872	1-Bigelow Middle School	118b	hall 6	3	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BIH	3	No Retrofit Proposed	34	BIH
873	1-Bigelow Middle School	118	teachers lounge	8	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	BIM	8	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	BIM
874	1-Bigelow Middle School	118	teachers lounge	1	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BIM	1	No Retrofit Proposed	34	BIM
875	1-Bigelow Middle School	117	exercise room	2	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BIGYM	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BIGYM
876	1-Bigelow Middle School	117	exercise room	2	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BIGYM	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BIGYM
877	1-Bigelow Middle School	118a	office	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	BIP	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	BIP
878	1-Bigelow Middle School	108b	hall 7	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast, Emergency Lights	88	BIH	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast, Outboard Lamps Only	42	BIH
879	1-Bigelow Middle School	108b	hall 7	2	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	2	New LED Exit Sign	2	X
880	1-Bigelow Middle School	108b	hall 7	1	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BIH	1	No Retrofit Proposed	34	BIH
881	1-Bigelow Middle School	108b	hall 7	1	1'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BIH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BIH
882	1-Bigelow Middle School	108b	hall 7	4	Incandescent Recessed Fixture w/ (1) 90w Incandescent Lamp	90	BIH	2	New 4' Wide Wrap Fixture w/ (1) F28T8 Lamp & (1) 1/32 Elec. Normal-Power High Efficiency Ballast	25	BIH
883	1-Bigelow Middle School	120a	hall 8	8	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast, Emergency Lights	88	BIH	8	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast, Outboard Lamps Only	42	BIH
884	1-Bigelow Middle School	120a	hall 8	2	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	2	No Retrofit Proposed	30	X
885	1-Bigelow Middle School	120	cafeteria	10	Incandescent Fixture w/ (1) 120w Incandescent ER or BR Flood Lamp	120	BIO	10	Retrofit w/ Downlight Retrofit Kit w/ (1) 42 watt CF Lamp & Electronic Ballast, 10 Can	45	BIO
886	1-Bigelow Middle School	120	cafeteria	15	Incandescent Fixture w/ (1) 120w Incandescent ER or BR Flood Lamp	120	BIO	15	Retrofit w/ Downlight Retrofit Kit w/ (1) 42 watt CF Lamp & Electronic Ballast, 10 Can	45	BIO
887	1-Bigelow Middle School	120	cafeteria	1	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	BIO	1	New LED Exit Sign	2	BIO
888	1-Bigelow Middle School	120	cafeteria	2	Exit Sign w/ LED	2	X	2	No Retrofit Proposed	2	X
889	1-Bigelow Middle School	122	kitchen	18	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	BIO	18	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	BIO
890	1-Bigelow Middle School	122	kitchen	1	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BIO	1	No Retrofit Proposed	34	BIO
891	1-Bigelow Middle School	122	kitchen	3	Incandescent Jelly Jar Fixture w/ (1) 52w Incandescent Lamp	52	BIO	3	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	BIO
892	1-Bigelow Middle School	122a	hall 9	3	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BIH	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BIH
893	1-Bigelow Middle School	122a	hall 9	2	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	2	No Retrofit Proposed	30	X

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
894	1-Bigelow Middle School	122b	office	1	2'x4' Surface Mounted Box w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BIO	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BIO
895	1-Bigelow Middle School	122c	storage	3	Incandescent Bare Socket Fixture w/ (1) 52w Incandescent Lamp	52	BIS	2	New 4' Wrap Fixture w/ (1) F28T8 Lamp & (1) 1/32 Elec. Normal-Power High Efficiency Ballast	25	BIS
896	1-Bigelow Middle School	122d	loading dock	2	Incandescent Recessed 12"x12" Fixture w/ (1) 52w Incandescent Lamp	52	BIO	2	New 4' Wide Wrap Fixture w/ (1) F28T8 Lamp & (1) 1/32 Elec. Normal-Power High Efficiency Ballast	25	BIO
897	1-Bigelow Middle School	122e	bathroom vestibule	1	Incandescent Drum Fixture w/ (2) 52w Incandescent Lamps	104	BIR	1	New 2' Wide Wrap Fixture w/ (2) F17T8 Lamp & (2) 1/17 Elec. Normal-Power High Efficiency Ballast	30	BIR
898	1-Bigelow Middle School	122f	bathroom	1	Incandescent Drum Fixture w/ (2) 52w Incandescent Lamps	104	BIR	1	New 2' Wide Wrap Fixture w/ (2) F17T8 Lamp & (2) 1/17 Elec. Normal-Power High Efficiency Ballast	30	BIR
899	1-Bigelow Middle School	124a	stair 4	2	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BIH	2	No Retrofit Proposed	34	BIH
900	1-Bigelow Middle School	124a	stair 4	1	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	1	No Retrofit Proposed	30	X
901	1-Bigelow Middle School	124a	stair 4	1	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BIH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BIH
902	1-Bigelow Middle School	124	stage	10	Incandescent Poker Hat Fixture w/ (1) 300w Incandescent PS Lamp	300	BIS	6	New High Bay Fixture w/ (1) 150w ICETRON Induction Lamp & Induction Ballast, Universal Voltage	157	BIS
903	1-Bigelow Middle School	124	stage	7	Incandescent Jelly Jar Fixture w/ (1) 52w Incandescent Lamp	52	BIS	7	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	BIS
904	1-Bigelow Middle School	124	stage	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
905	1-Bigelow Middle School	126	auditorium	41	Incandescent Flood Fixture w/ (1) 75w Incandescent Lamp	75	BIM	41	Retrofit w/ Downlight Retrofit Kit w/ (1) 42 watt CF Lamp & Electronic Dimmable Ballast, 12" Can	45	BIM
906	1-Bigelow Middle School	126	auditorium	4	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	4	No Retrofit Proposed	30	X
907	1-Bigelow Middle School	120a	hall 8 contd	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast, Emergency Lights	88	BIH	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast, Outboard Lamps Only	42	BIH
908	1-Bigelow Middle School	120a	hall 8 contd	1	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast	58	BIH	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	BIH
909	1-Bigelow Middle School	126a	storage	1	Incandescent Bare Socket Fixture w/ (1) 52w Incandescent Lamp	52	BIS	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	BIS
910	1-Bigelow Middle School	126c	hall 10	9	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast, Emergency Lights	88	BIH	9	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast, Outboard Lamps Only	42	BIH
911	1-Bigelow Middle School	126c	hall 10	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast, Emergency Lights	88	BIH	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast, Outboard Lamps Only	42	BIH
912	1-Bigelow Middle School	126c	hall 10	1	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	1	No Retrofit Proposed	30	X
913	1-Bigelow Middle School	126c	hall 10	4	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast	58	BIH	4	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	BIH
914	1-Bigelow Middle School	126d	restroom	1	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	BIR	1	New 2'x4' Recessed Troffer w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BIR
915	1-Bigelow Middle School	126e	entryway	2	2'x4' Recessed Troffer w/ (3) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	105	BIH	2	New 2'x4' Recessed Troffer w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BIH
916	1-Bigelow Middle School	126e	entryway	2	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	2	No Retrofit Proposed	30	X
917	1-Bigelow Middle School	126c	hall 10	1	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast	58	BIH	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	BIH
918	1-Bigelow Middle School	126f	restroom	1	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast	58	BIR	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	BIR
919	1-Bigelow Middle School	100a	hall 11	13	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast, Emergency Lights	88	BIH	13	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast, Outboard Lamps Only	42	BIH
920	1-Bigelow Middle School	100a	hall 11	2	Exit Sign w/ LED	2	X	2	No Retrofit Proposed	2	X
921	1-Bigelow Middle School	100a	hall 11	1	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	1	No Retrofit Proposed	30	X
922	1-Bigelow Middle School	103	computer room	3	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BIO	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BIO
923	1-Bigelow Middle School	103	computer room	3	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BIO	3	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BIO

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
924	1-Bigelow Middle School	103	computer lab	3	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BIO	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BIO
925	1-Bigelow Middle School	103	computer lab	3	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BIO	3	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BIO
926	1-Bigelow Middle School	100	library	38	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BIO	38	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BIO
927	1-Bigelow Middle School	100	library	2	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BIO	2	Relamp & Reballast an 8' Fixture w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BIO
928	1-Bigelow Middle School	100	library	2	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	2	No Retrofit Proposed	30	X
929	1-Bigelow Middle School	100b	office	2	2'x4' Surface Mounted Box w/ (3) F32T8 Lamps & (2) Electronic Ballast	88	BIP	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	BIP
930	1-Bigelow Middle School	100c	copy room	2	2'x4' Surface Mounted Box w/ (3) F32T8 Lamps & (2) Electronic Ballast	88	BIO	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	BIO
931	1-Bigelow Middle School	102	classroom	6	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BICR	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BICR
932	1-Bigelow Middle School	104	classroom	6	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BICR	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BICR
933	1-Bigelow Middle School	106	classroom	6	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BICR	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BICR
934	1-Bigelow Middle School	108	classroom	6	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BICR	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BICR
935	1-Bigelow Middle School	110	classroom	6	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BICR	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BICR
936	1-Bigelow Middle School	110a	stair 14	2	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BIH	2	No Retrofit Proposed	34	BIH
937	1-Bigelow Middle School	110a	stair 14	1	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	1	No Retrofit Proposed	30	X
938	1-Bigelow Middle School	110a	stair 14	1	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	BIH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BIH
939	1-Bigelow Middle School	111	classroom	6	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BICR	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BICR
940	1-Bigelow Middle School	109f	hall 12	1	2'x4' Recessed Troffer w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	BIH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BIH
941	1-Bigelow Middle School	109b	office	2	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BIP	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BIP
942	1-Bigelow Middle School	109d	office	2	2'x4' Recessed Troffer w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	BIP	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BIP
943	1-Bigelow Middle School	109g	hall	1	2'x4' Recessed Troffer w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	BIH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BIH
944	1-Bigelow Middle School	109e	office	4	2'x4' Recessed Troffer w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	BIP	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BIP
945	1-Bigelow Middle School	100a	hall contd	1	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast	58	BIH	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	BIH
946	1-Bigelow Middle School	107	office	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	BIP	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	BIP
947	1-Bigelow Middle School	105	server room	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	BIS	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	BIS
948	1-Bigelow Middle School	105a	boys restroom	2	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BIR	2	No Retrofit Proposed	34	BIR
949	1-Bigelow Middle School	105c	girls restroom	3	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BIR	3	No Retrofit Proposed	34	BIR
950	1-Bigelow Middle School	112a	hall 14	3	Incandescent Recessed Fixture w/ (1) 90w Incandescent Lamp	90	BIH	3	New 2' Wide Wrap Fixture w/ (2) F17T8 Lamp & (2) 1/17 Elec. Normal-Power High Efficiency Ballast	30	BIH
951	1-Bigelow Middle School	112a	hall 14	4	Incandescent Recessed Fixture w/ (1) 90w Incandescent Lamp	90	BIH	2	New 2' Wide Wrap Fixture w/ (2) F17T8 Lamp & (2) 1/17 Elec. Normal-Power High Efficiency Ballast	30	BIH
952	1-Bigelow Middle School	112a	hall 14	2	8' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BIH	2	Relamp & Reballast an 8' Fixture w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BIH
953	1-Bigelow Middle School	112a	hall 14	1	4' Wrap Fluorescent w/ (1) F32T8 Lamp & (1) Electronic Ballast, Wall Mounted	32	BIH	1	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	BIH

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
954	1-Bigelow Middle School	112a	hall 14	1	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	1	No Retrofit Proposed	30	X
955	1-Bigelow Middle School	112	shop	18	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BIO	18	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BIO
956	1-Bigelow Middle School	113	classroom	8	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	BICR	8	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	BICR
957	1-Bigelow Middle School	113	classroom	1	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast	58	BICR	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	BICR
958	1-Bigelow Middle School	114	classroom	8	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	BICR	8	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	BICR
959	1-Bigelow Middle School	114	classroom	2	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast	58	BICR	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	BICR
960	1-Bigelow Middle School	114a	study area	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	BIM	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	BIM
961	1-Bigelow Middle School	119	vacant office	1	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BIP	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BIP
962	1-Bigelow Middle School	121	music room	24	Incandescent Recessed Fixture w/ (1) 90w Incandescent Lamp	90	BICR	18	New 4' Wide Wrap Fixture w/ (1) F28T8 Lamp & (1) 1/32 Elec. Normal-Power High Efficiency Ballast	25	BICR
963	1-Bigelow Middle School	121b	office	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	BIP	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	BIP
964	1-Bigelow Middle School	121c	storage	1	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast	58	BIS	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	BIS
965	1-Bigelow Middle School	121a	music room hall	2	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast	58	BIH	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	BIH
966	1-Bigelow Middle School	121d	storage	1	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast	58	BIS	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	BIS
967	1-Bigelow Middle School	121e	storage	1	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast	58	BIS	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	BIS
968	1-Bigelow Middle School	129a	nurses room	4	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	BIO	4	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	BIO
969	1-Bigelow Middle School	129b	restroom	1	2' Vanity Fixture w/ (2) F20T12 Lamps & (1) Standard Magnetic Ballast	56	BIR	1	Relamp & Reballast w/ (2) F17T8 Lamps & (1) 2/17 Elec. Low-Power High Efficiency Ballast	28	BIR
970	1-Bigelow Middle School	129c	copy room	6	Incandescent Bare Lamp Fixture w/ (1) 90w Incandescent Lamp	90	BIO	2	New 8' Wrap Fixture w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast	48	BIO
971	1-Bigelow Middle School	129d	hallway 15	3	2'x2' Recessed Troffer w/ (2) FO17T8 Lamps & (1) Electronic Ballast	34	BIH	3	No Retrofit Proposed	34	BIH
972	1-Bigelow Middle School	129	conference room	2	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BIM	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BIM
973	1-Bigelow Middle School	129e	conference room storage	1	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast	58	BIS	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	BIS
974	1-Bigelow Middle School	127	main office	9	2'x4' Surface Mounted Box w/ (3) F32T8 Lamps & (2) Electronic Ballast	88	BIO	9	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	BIO
975	1-Bigelow Middle School	125	office	1	2'x2' Surface Mounted Box w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	BIP	1	New 2'x2' Surface Mount Box w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	BIP
976	1-Bigelow Middle School	125	office	4	2'x4' Surface Mounted Box w/ (3) F32T8 Lamps & (2) Electronic Ballast	88	BIP	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	BIP
977	1-Bigelow Middle School	125a	copy room	1	2'x4' Surface Mounted Box w/ (3) F32T8 Lamps & (2) Electronic Ballast	88	BIO	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	BIO
978	1-Bigelow Middle School	125b	office	1	2'x4' Surface Mounted Box w/ (3) F32T8 Lamps & (2) Electronic Ballast	88	BIP	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	BIP
979	1-Bigelow Middle School	125c	office	2	2'x4' Surface Mounted Box w/ (3) F32T8 Lamps & (2) Electronic Ballast	88	BIP	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	BIP
980	1-Bigelow Middle School	123	principals office	5	2'x4' Surface Mounted Box w/ (3) F32T8 Lamps & (2) Electronic Ballast	88	BIP	5	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	BIP
981	1-Bigelow Middle School	123a	restroom	1	2' Vanity Fixture w/ (2) F20T12 Lamps & (1) Standard Magnetic Ballast	56	BIR	1	Relamp & Reballast w/ (2) F17T8 Lamps & (1) 2/17 Elec. Low-Power High Efficiency Ballast	28	BIR
982	1-Bigelow Middle School	1200	exterior entry doors	2	HID Wall Mounted Fixture w/ (1) 50w High Pressure Sodium Lamp & Ballast	60	E	2	No Retrofit Proposed	60	E
983	1-Bigelow Middle School	1201	exterior	1	HID Fixture w/ (1) 250w High Pressure Sodium, Wall Packed	295	E	1	No Retrofit Proposed	295	E

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
984	1-Bigelow Middle School	1100	exterior	1	HID Wall Pack Fixture w/ (1) 50w High Pressure Sodium Lamp & Ballast	60	E	1	No Retrofit Proposed	60	E
985	1-Bigelow Middle School	1100	exterior	1	HID Fixture w/ (1) 100w High Pressure Sodium	130	E	1	No Retrofit Proposed	130	E
986	1-Bigelow Middle School	1103	exterior	1	HID Fixture w/ (1) 100W High Pressure Sodium Wallpack	130	E	1	No Retrofit Proposed	130	E
987	1-Bigelow Middle School	1102	exterior	1	HID Fixture w/ (1) 250w High Pressure Sodium, Wall Mounted	295	E	1	No Retrofit Proposed	295	E
988	1-Bigelow Middle School	1104	exterior	1	HID Wall Mounted Fixture w/ (1) 50w High Pressure Sodium Lamp & Ballast	60	E	1	No Retrofit Proposed	60	E
989	1-Bigelow Middle School	1105	exterior	1	HID Fixture w/ (1) 50w High Pressure Sodium Lamp & Ballast	60	E	1	No Retrofit Proposed	60	E
990	1-Bigelow Middle School	1106	exterior	1	HID Fixture w/ (1) 100w High Pressure Sodium	130	E	1	No Retrofit Proposed	130	E
991	1-Bigelow Middle School	1107	exterior	1	HID Fixture w/ (1) 100w High Pressure Sodium	130	E	1	No Retrofit Proposed	130	E
992	1-Bigelow Middle School	1108	exterior	1	HID Fixture w/ (1) 50w High Pressure Sodium Lamp & Ballast	60	E	1	No Retrofit Proposed	60	E
993	1-Bigelow Middle School	1109	exterior	3	Incandescent Jelly Jar Fixture w/ (1) 150w Incandescent Lamp	150	E	3	Relamp w/ (1) 19 watt Compact Fluorescent Screw-In	19	E
994	1-Bigelow Middle School	1110	exterior	1	HID Fixture w/ (1) 250w High Pressure Sodium, Wall Packed	295	E	1	No Retrofit Proposed	295	E
995	1-Bigelow Middle School	1111	exterior	1	HID Wall Mounted Fixture w/ (1) 50w High Pressure Sodium Lamp & Ballast	60	E	1	No Retrofit Proposed	60	E
996	1-Bigelow Middle School	1112	exterior	3	HID Wall Mounted Fixture w/ (1) 50w High Pressure Sodium Lamp & Ballast	60	E	3	No Retrofit Proposed	60	E
997	1-Bigelow Middle School	1113	exterior	1	HID Wall Mounted Fixture w/ (1) 100w High Pressure Sodium	130	E	1	No Retrofit Proposed	130	E
998	1-Bigelow Middle School	1114	exterior	1	HID Wall Mounted Fixture w/ (1) 100w High Pressure Sodium	130	E	1	No Retrofit Proposed	130	E
999	1-Bigelow Middle School	1115	exterior	2	HID Fixture w/ (1) 250w High Pressure Sodium, Wall Mounted	295	E	2	No Retrofit Proposed	295	E
1000	1-Bigelow Middle School	1116	exterior	1	HID Fixture w/ (1) 250w High Pressure Sodium, Wall Mounted	295	E	1	No Retrofit Proposed	295	E
1001	1-Bigelow Middle School	1117	exterior	1	HID Wall Mounted Fixture w/ (1) 50w High Pressure Sodium Lamp & Ballast	60	E	1	No Retrofit Proposed	60	E
1002	1-Bigelow Middle School	1118	exterior	1	HID Wall Mounted Fixture w/ (1) 100w High Pressure Sodium	130	E	1	No Retrofit Proposed	130	E
1003	1-Bigelow Middle School	10	classroom	12	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	BICR	12	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	BICR
1004	1-Bigelow Middle School	10	classroom	4	8' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BICR	4	Relamp & Reballast an 8' Fixture w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BICR
1005	1-Bigelow Middle School	8	classroom	12	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	BICR	12	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	BICR
1006	1-Bigelow Middle School	8	classroom	4	8' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BICR	4	Relamp & Reballast an 8' Fixture w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BICR
1007	1-Bigelow Middle School	6	classroom	12	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	BICR	12	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	BICR
1008	1-Bigelow Middle School	6	classroom	4	8' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BICR	4	Relamp & Reballast an 8' Fixture w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BICR
1009	1-Bigelow Middle School	6	classroom	1	4' Wrap Fluorescent w/ (1) F32T8 Lamp & (1) Electronic Ballast	32	BICR	1	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	BICR
1010	1-Bigelow Middle School	4	classroom	12	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	BICR	12	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	BICR
1011	1-Bigelow Middle School	4	classroom	4	8' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BICR	4	Relamp & Reballast an 8' Fixture w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BICR
1012	1-Bigelow Middle School	2	classroom	11	8' Wrap Fluorescent w/ (4) F032T8 Lamps & (2) Electronic Ballasts	112	BICR	11	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BICR
1013	1-Bigelow Middle School	2	classroom	1	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BICR	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BICR

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
1014	1-Bigelow Middle School	1	classroom	4	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BICR	4	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BICR
1015	1-Bigelow Middle School	1	classroom	5	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BICR	5	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BICR
1016	1-Bigelow Middle School	1	classroom	2	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BICR	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BICR
1017	1-Bigelow Middle School	1a	kiln & storage	1	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BIS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BIS
1018	1-Bigelow Middle School	1b	hall 16	14	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast, Emergency Lights	88	BIH	14	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast, Outboard Lamps Only	42	BIH
1019	1-Bigelow Middle School	1b	hall 16	3	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	3	No Retrofit Proposed	30	X
1020	1-Bigelow Middle School	1b	hall 16	1	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	BIH	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	BIH
1021	1-Bigelow Middle School	3	classroom	12	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	BICR	12	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	BICR
1022	1-Bigelow Middle School	3	classroom	4	8' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BICR	4	Relamp & Reballast an 8' Fixture w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BICR
1023	1-Bigelow Middle School	3	classroom	1	4' Wrap Fluorescent w/ (1) F32T8 Lamp & (1) Electronic Ballast	32	BICR	1	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	BICR
1024	1-Bigelow Middle School	3a	girls restroom	3	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast	58	BIR	3	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	BIR
1025	1-Bigelow Middle School	3c	boys restroom	2	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast	58	BIR	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	BIR
1026	1-Bigelow Middle School	5	classroom	9	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	BICR	9	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	BICR
1027	1-Bigelow Middle School	5	classroom	4	8' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BICR	4	Relamp & Reballast an 8' Fixture w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BICR
1028	1-Bigelow Middle School	5a	staff restroom	1	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast	58	BIR	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	BIR
1029	1-Bigelow Middle School	5b	electrical room	1	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BIS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BIS
1030	1-Bigelow Middle School	7a	hall 17	2	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast	58	BIH	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	BIH
1031	1-Bigelow Middle School	7	classroom	11	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	BICR	11	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	BICR
1032	1-Bigelow Middle School	7	classroom	1	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	BICR	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	BICR
1033	1-Bigelow Middle School	7	classroom	1	8' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BICR	1	Relamp & Reballast an 8' Fixture w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BICR
1034	1-Bigelow Middle School	7	classroom	1	4' Wrap Fluorescent w/ (1) F32T8 Lamp & (1) Electronic Ballast	32	BICR	1	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	BICR
1035	1-Bigelow Middle School	8a	hall 18	1	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast, Emergency Lights	88	BIH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast, Outboard Lamps Only	42	BIH
1036	1-Bigelow Middle School	8a	hall 18	1	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	BIH	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	BIH
1037	1-Bigelow Middle School	8	small class	3	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	BICR	3	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	BICR
1038	1-Bigelow Middle School	8	small class	3	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	BICR	3	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	BICR
1039	1-Bigelow Middle School	8	small class	2	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	2	No Retrofit Proposed	30	X
1040	1-Bigelow Middle School	11	storage	2	Incandescent Poker Hat Fixture w/ (1) 52w Incandescent Lamp	52	BIS	2	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	BIS
1041	1-Bigelow Middle School	12	boiler room	20	Incandescent Poker Hat Fixture w/ (1) 200w Incandescent Lamp	200	BIS	20	Relamp w/ (1) 60 watt Compact Fluorescent Screw-In, 1" Socket Extender	60	BIS
1042	1-Bigelow Middle School	13	restroom vestibule	1	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BIR	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BIR
1043	1-Bigelow Middle School	13a	restroom	1	2' Vanity Fixture w/ (2) F20T12 Lamps & (1) Standard Magnetic Ballast	56	BIR	1	Relamp & Reballast w/ (2) F17T8 Lamps & (1) 2/17 Elec. Low-Power High Efficiency Ballast	28	BIR

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
1044	1-Bigelow Middle School	14	electrical room	2	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BIS	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BIS
1045	1-Bigelow Middle School	218c	mens restroom	2	Incandescent Recessed Fixture w/ (1) 52w Incandescent Lamp	52	BIR	2	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	BIR
1046	1-Bigelow Middle School	218d	janitor closet	1	Incandescent Bare Socket Fixture w/ (1) 52w Incandescent Lamp	52	BIS	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	BIS
1047	1-Bigelow Middle School	218e	womens restroom	2	Incandescent Recessed Fixture w/ (1) 52w Incandescent Lamp	52	BIR	2	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	BIR
1048	1-Bigelow Middle School	219b	restroom	2	Incandescent Recessed Fixture w/ (1) 52w Incandescent Lamp	52	BIR	2	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	BIR
1049	1-Bigelow Middle School	219c	locker	1	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BIR	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BIR
1050	1-Bigelow Middle School	219d	storage	1	Incandescent Bare Socket Fixture w/ (1) 52w Incandescent Lamp	52	BIS	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	BIS
1051	1-Bigelow Middle School	116b	restroom	1	Incandescent Recessed Fixture w/ (1) 52w Incandescent Lamp	52	BIR	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	BIR
1052	1-Bigelow Middle School	119a	elevator room	1	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BIS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BIS
1053	1-Bigelow Middle School	7b	janitor closet	1	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	BIS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BIS
1054	1-Bigelow Middle School	3b	janitor closet	1	Incandescent Bare Socket Fixture w/ (1) 52w Incandescent Lamp	52	BIS	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	BIS
1055	1-Bigelow Middle School	105b	janitor closet	1	Incandescent Bare Socket Fixture w/ (1) 52w Incandescent Lamp	52	BIS	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	BIS
1056	1-Bigelow Middle School	109a	office	2	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	BIP	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	BIP
1057	1-Bigelow Middle School	109c	office	2	2'x4' Recessed Troffer w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	BIP	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	BIP
1058	1-Bigelow Middle School	126b	storage closet	1	Incandescent Bare Socket Fixture w/ (1) 52w Incandescent Lamp	52	BIS	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	BIS
1059	6-Police Headquarters	301	OFFICE	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Parabolic Diffuser	58	PP	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PP
1060	6-Police Headquarters	302	OFFICE	4	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Parabolic Diffuser	58	PP	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PP
1061	6-Police Headquarters	303	ELEVATOR VESTIBULE	1	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Parabolic Diffuser	58	PH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PH
1062	6-Police Headquarters	303	ELEVATOR VESTIBULE	1	Compact Fluorescent Recessed Fixture w/ 13w Compact Fluorescent Lamp & Magnetic Ballast	15	PH	1	No Retrofit Proposed	15	PH
1063	6-Police Headquarters	304	OPEN OFFICES	5	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	PO	5	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	PO
1064	6-Police Headquarters	304	OPEN OFFICES	1	2'x2' Recessed Troffer w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast , Parabolic Diffuser	58	PO	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast, Parabolic Diffuser	45	PO
1065	6-Police Headquarters	301	OFFICE	1	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast, Parabolic Diffuser	58	PP	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast, Parabolic Diffuser	45	PP
1066	6-Police Headquarters	305	OFFICE	1	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Parabolic Diffuser	58	PP	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PP
1067	6-Police Headquarters	305	OFFICE	1	2'x2' Recessed Troffer w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast , Parabolic Diffuser	58	PP	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast, Parabolic Diffuser	45	PP
1068	6-Police Headquarters	306	OFFICE	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Parabolic Diffuser	58	PP	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PP
1069	6-Police Headquarters	304	HALLWAY	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Parabolic Diffuser	58	PH	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PH
1070	6-Police Headquarters	307	OFFICE	4	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Parabolic Diffuser	58	PP	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PP
1071	6-Police Headquarters	307A	RESTROOM	1	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	PR	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PR
1072	6-Police Headquarters	307A	SHOWER	1	Compact Fluorescent Recessed Fixture w/ 13w Compact Fluorescent Lamp & Magnetic Ballast	15	PR	1	No Retrofit Proposed	15	PR
1073	6-Police Headquarters	308	CONFERENCE ROOM	8	Incandescent Fixture w/ (1) 50w Incandescent Lamp, Dimmer Controlled	50	PM	8	No Retrofit Proposed	50	PM

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
1074	6-Police Headquarters	308	CONFERENCE ROOM	4	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Parabolic Diffuser	58	PM	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PM
1075	6-Police Headquarters	309	SKYLIGHT/CORRID OR	4	Compact Fluorescent Fixture w/ (2) 13w Compact Fluorescent Lamps & Magnetic Ballast	30	PH	4	No Retrofit Proposed	30	PH
1076	6-Police Headquarters	309	SKYLIGHT/CORRID OR	4	8' Fluorescent Ice Tray w/ (4) FO32T8 Lamps & (1) Electronic Ballast	112	PH	4	New 8' Wrap Fixture w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast	65	PH
1077	6-Police Headquarters	309	SKYLIGHT/CORRID OR	2	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	2	No Retrofit Proposed	30	X
1078	6-Police Headquarters	309	SKYLIGHT/CORRID OR	2	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast, Parabolic Diffuser	58	PH	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast, Parabolic Diffuser	45	PH
1079	6-Police Headquarters	310	WOMENS RESTROOM	1	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast	58	PR	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	PR
1080	6-Police Headquarters	311	mens restroom	1	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast	58	PR	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	PR
1081	6-Police Headquarters	309	CORRIDOR	2	Compact Fluorescent Fixture w/ (2) 13w Compact Fluorescent Lamps & Magnetic Ballast	30	PH	2	No Retrofit Proposed	30	PH
1082	6-Police Headquarters	312	OFFICE	4	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Parabolic Diffuser	58	PP	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PP
1083	6-Police Headquarters	312	OFFICE	1	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast, Parabolic Diffuser	58	PP	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast, Parabolic Diffuser	45	PP
1084	6-Police Headquarters	313	BREAK AREA	2	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast	58	PM	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	PM
1085	6-Police Headquarters	314	EVIDENCE PROCESSING	3	4' Strip Fluorescent w/ (1) F40T12/34w Lamp & (1) Energy Efficient Magnetic Ballast	42	PP	3	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	PP
1086	6-Police Headquarters	315	SMALL HALL	1	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast, Parabolic Diffuser	58	PH	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast, Parabolic Diffuser	45	PH
1087	6-Police Headquarters	315	OPEN OFFICES	8	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Parabolic Diffuser	58	PO	8	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PO
1088	6-Police Headquarters	315	OPEN OFFICES	8	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Parabolic Diffuser	58	PO	8	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PO
1089	6-Police Headquarters	316	OFFICE	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Parabolic Diffuser	58	PP	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PP
1090	6-Police Headquarters	317	OFFICE	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Parabolic Diffuser	58	PP	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PP
1091	6-Police Headquarters	318	CONFERENCE ROOM	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Parabolic Diffuser	58	PM	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PM
1092	6-Police Headquarters	201	ENTRY VESTIBULE	1	4' Uplight/Downlight Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Pendant Mounted	58	PH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PH
1093	6-Police Headquarters	202	LOBBY	1	8' Uplight/Downlight Fluorescent w/ (4) FO32T8 Lamps & (1) Electronic Ballast	112	PH	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	PH
1094	6-Police Headquarters	202	LOBBY	1	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	1	No Retrofit Proposed	30	X
1095	6-Police Headquarters	202	LOBBY	3	8' Fluorescent Ice Tray w/ (4) FO32T8 Lamps & (1) Electronic Ballast	112	PH	3	New 8' Wrap Fixture w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast	65	PH
1096	6-Police Headquarters	202	LOBBY	4	Compact Fluorescent Wall Mounted Fixture w/ (2) 13w Compact Fluorescent Lamps & Magnetic Ballast	30	PH	4	No Retrofit Proposed	30	PH
1097	6-Police Headquarters	202	LOBBY	3	Incandescent Track Fixture w/ (1) 20w Incandescent PAR20 Lamp	20	PH	3	No Retrofit Proposed	20	PH
1098	6-Police Headquarters	203	WOMENS RESTROOM	3	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast	58	PR	3	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	PR
1099	6-Police Headquarters	203	WOMENS RESTROOM	2	Compact Fluorescent Recessed Fixture w/ 15w Compact Fluorescent Lamp & Magnetic Ballast	17	PR	2	No Retrofit Proposed	17	PR
1100	6-Police Headquarters	204	MENS RESTROOM	3	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast	58	PR	3	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	PR
1101	6-Police Headquarters	204	mens restroom	2	Compact Fluorescent Recessed Fixture w/ 15w Compact Fluorescent Lamp & Magnetic Ballast	17	PR	2	No Retrofit Proposed	17	PR
1102	6-Police Headquarters	205	CUSTODIAL CLOSET	1	Compact Fluorescent Recessed Fixture w/ 15w Compact Fluorescent Lamp & Magnetic Ballast	17	PS	1	No Retrofit Proposed	17	PS
1103	6-Police Headquarters	206	CORRIDOR	2	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast	58	PH	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	PH

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
1104	6-Police Headquarters	207	CORRIDOR	4	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast, Parabolic Diffuser	58	PH	4	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast, Parabolic Diffuser	45	PH
1105	6-Police Headquarters	207	CORRIDOR	2	Compact Fluorescent Fixture w/ (2) 13w Compact Fluorescent Lamps & Magnetic Ballast	30	PH	2	No Retrofit Proposed	30	PH
1106	6-Police Headquarters	207a	TELEPHONE ROOM	1	Incandescent Recessed Fixture w/ (1) 52w Incandescent Lamp	52	PS	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	PS
1107	6-Police Headquarters	207b	RADIO ROOM & LOCKERS	1	4' Strip Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	PO	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PO
1108	6-Police Headquarters	208	BREAK ROOM	3	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Parabolic Diffuser	58	PM	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PM
1109	6-Police Headquarters	209	GUARD ROOM	6	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Parabolic Diffuser	58	PO	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PO
1110	6-Police Headquarters	210	OPEN OFFICE	6	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Parabolic Diffuser	58	PO	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PO
1111	6-Police Headquarters	211a	STAIRS	4	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast	58	PH	4	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	PH
1112	6-Police Headquarters	211a	ELEVATOR LIGHTS	2	Compact Fluorescent Fixture w/ (2) 13w Compact Fluorescent Lamps & Magnetic Ballast	30	PH	2	No Retrofit Proposed	30	PH
1113	6-Police Headquarters	212a	OPEN OFFICES	6	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Parabolic Diffuser	58	PO	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PO
1114	6-Police Headquarters	213a	OFFICE	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Parabolic Diffuser	58	PP	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PP
1115	6-Police Headquarters	211a	STAIRS	1	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	1	No Retrofit Proposed	30	X
1116	6-Police Headquarters	212b	LOCKERS	4	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Parabolic Diffuser	58	PR	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PR
1117	6-Police Headquarters	212c	OFFICES	4	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Parabolic Diffuser	58	PO	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PO
1118	6-Police Headquarters	211b	OFFICE VESTIBULE	1	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast, Parabolic Diffuser	58	PH	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast, Parabolic Diffuser	45	PH
1119	6-Police Headquarters	213b	OFFICE	5	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Parabolic Diffuser	58	PP	5	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PP
1120	6-Police Headquarters	214	CONTROL ROOM	6	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Parabolic Diffuser	58	PO	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PO
1121	6-Police Headquarters	215	SERVER ROOM	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	PS	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	PS
1122	6-Police Headquarters	216	OFFICE	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	PP	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	PP
1123	6-Police Headquarters	217	OFFICE	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (2) Electronic Ballast, Parabolic Diffuser	88	PP	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	PP
1124	6-Police Headquarters	218	DISPATCH CONTROL	1	2'x2' Recessed Troffer w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast, Dimmer Controlled	58	PO	1	No Retrofit Proposed	58	PO
1125	6-Police Headquarters	218	DISPATCH CONTROL	1	2'x2' Recessed Troffer w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast, Dimmer Controlled	58	PO	1	No Retrofit Proposed	58	PO
1126	6-Police Headquarters	218	DISPATCH CONTROL	4	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Dimmer Controlled, 4-Lamp Fixture Delamped to 2	58	PO	4	No Retrofit Proposed	58	PO
1127	6-Police Headquarters	218	DISPATCH CONTROL	1	2'x4' Recessed Troffer w/ (2) FO32T8 Lamps & (1) Electronic Ballasts, Parabolic Diffuser, 2-Lamp Fixture Delamped to 0	58	PO	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PO
1128	6-Police Headquarters	218	DISPATCH CONTROL	1	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, 4-Lamp Fixture Delamped to 2	58	PO	1	No Retrofit Proposed	58	PO
1129	6-Police Headquarters	218	DISPATCH CONTROL	2	2'x2' Recessed Troffer w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast, Dimmer Controlled	58	PO	2	No Retrofit Proposed	58	PO
1130	6-Police Headquarters	218	DISPATCH CONTROL	1	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast, Dimmer Control	88	PO	1	No Retrofit Proposed	88	PO
1131	7-Police Garage	101	GARAGE PARKING	5	8' Wide Wrap Fluorescent w/ (6) FO32T8 Lamps & (2) Electronic Ballasts, Pendent Mounted	174	X	5	Relamp & Reballast w/ (6) F28T8 Lamps & (2) 3/32 Elec. Low-Power High Efficiency Ballasts	126	X
1132	7-Police Garage	101	GARAGE PARKING	1	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Wall Mounted	58	X	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	X
1133	7-Police Garage	102	RESTROOM	1	4' Vanity Luminaire w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	PR	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PR

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
1134	7-Police Garage	102	RESTROOM	1	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	PR	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PR
1135	7-Police Garage	101	GARAGE PARKING	1	HID Fixture w/ (1) 250w Metal Halide Lamp & Ballast	295	X	1	No Retrofit Proposed	295	X
1136	7-Police Garage	103	REPAIR SHOP	5	8' Wide Wrap Fluorescent w/ (6) FO32T8 Lamps & (2) Electronic Ballasts, Chain Mounted	174	PO	5	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	PO
1137	7-Police Garage	103	REPAIR SHOP	1	8' Wide Wrap Fluorescent w/ (6) FO32T8 Lamps & (2) Electronic Ballasts, Pendent Mounted	174	PO	1	Relamp & Reballast w/ (6) F28T8 Lamps & (2) 3/32 Elec. Low-Power High Efficiency Ballasts	126	PO
1138	7-Police Garage	103	REPAIR SHOP	1	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Chain mounted	58	PO	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PO
1139	7-Police Garage	104	STORAGE & PARTS	1	8' Wide Wrap Fluorescent w/ (6) FO32T8 Lamps & (2) Electronic Ballasts, Chain Mounted	174	PS	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	PS
1140	7-Police Garage	104	STORAGE & PARTS	2	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Chain mounted	58	PS	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PS
1141	7-Police Garage	105	OFFICE	3	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	PP	3	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	PP
1142	7-Police Garage	105A	UPSTAIRS STORAGE	1	Incandescent Poker Hat Fixture w/ (1) 52w Incandescent Lamp	52	PS	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	PS
1143	7-Police Garage	101A	GENERATOR ROOM	2	8' Strip Fluorescent w/ (2) F96T12/65w Lamps & (1) Energy Efficient Magnetic Ballast	123	PS	2	New 8' Industrial Fixture w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast	65	PS
1144	7-Police Garage	106A	WAIT AREA	2	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	PM	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	PM
1145	7-Police Garage	106B	OPEN OFFICES	6	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	PO	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PO
1146	7-Police Garage	106C	OFFICE	3	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	PP	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PP
1147	7-Police Garage	107A	STORAGE	3	8' Wide Wrap Fluorescent w/ (6) FO32T8 Lamps & (2) Electronic Ballasts, Pendent Mounted	174	PS	3	Relamp & Reballast w/ (6) F28T8 Lamps & (2) 3/32 Elec. Low-Power High Efficiency Ballasts	126	PS
1148	7-Police Garage	107B	BREAK ROOM	1	2'x4' Recessed Troffer w/ (3) F32T8 Lamps & (1) Electronic Ballast	88	PM	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	PM
1149	7-Police Garage	107B	BREAK ROOM	1	4' Strip Fluorescent w/ (1) F40T12/34w Lamp & (1) Energy Efficient Magnetic Ballast	42	PM	1	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	PM
1150	7-Police Garage	107C	RESTROOM	1	2'x2' Recessed Troffer w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast	58	PR	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	PR
1151	7-Police Garage	107C	RESTROOM	1	Incandescent Fixture w/ (3) 52w Incandescent Lamps	156	PR	1	Relamp w/ (3) 13 watt Compact Fluorescent Screw-In	39	PR
1152	7-Police Garage	107D	STORAGE	1	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	PS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PS
1153	7-Police Garage	106D	COPY ROOM	3	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	PO	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PO
1154	7-Police Garage	106E	CORRIDOR	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	PH	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PH
1155	7-Police Garage	106F	CLOTHING STORAGE	2	1'x8' Surface Mounted Box w/ (4) FO32T8 Lamps & (1) Electronic Ballast	112	PS	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	PS
1156	7-Police Garage	206	STORAGE	3	1'x4' Surface Mounted Box w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	PS	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PS
1157	7-Police Garage	108	STORAGE	4	8' Wide Wrap Fluorescent w/ (6) FO32T8 Lamps & (2) Electronic Ballasts, Chain Mounted	174	PS	4	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	PS
1158	7-Police Garage	108	STORAGE	1	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Chain mounted	58	PS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PS
1159	7-Police Garage	106	ARMS STORAGE	2	1'x8' Surface Mounted Box w/ (4) FO32T8 Lamps & (1) Electronic Ballast	112	PS	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	PS
1160	6-Police Headquarters	1	CORRIDOR	1	2'x2' Surface Mounted Box w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast	58	PH	1	New 2'x2' Surface Mount Box w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	PH
1161	6-Police Headquarters	1	CORRIDOR	1	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Parabolic Diffuser	58	PH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PH
1162	6-Police Headquarters	2	OFFICE	4	4' Strip Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	PP	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PP
1163	6-Police Headquarters	3	GUN RANGE CONTROL RM	3	Incandescent Recessed Fixture w/ (1) 150w Incandescent Lamp, Dimmer Controlled	150	PO	3	No Retrofit Proposed	150	PO
1164	6-Police Headquarters	4	GUN RANGE	5	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	PO	5	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PO

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
1165	6-Police Headquarters	5	GUN RANGE	24	Incandescent Fixture w/ (1) 150w Incandescent Lamp, Dimmer Controlled	150	PO	24	No Retrofit Proposed	150	PO
1166	6-Police Headquarters	6	ARMORY	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	PO	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PO
1167	6-Police Headquarters	7	CORRIDOR	5	2'x2' Recessed Troffer w/ (3) FB32T8 3"-U Lamps & (1) Electronic Ballast, Parabolic Lens	88	PH	5	New 2'x2' Surface Mount Box w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	PH
1168	6-Police Headquarters	7	CORRIDOR	2	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	2	No Retrofit Proposed	30	X
1169	6-Police Headquarters	8	UTILITY ROOM	1	8' Strip Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	PS	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	PS
1170	6-Police Headquarters	9	TELEPHONE ROOM	1	4' Strip Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	PS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PS
1171	6-Police Headquarters	8	UTILITY ROOM	1	8' Strip Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	PS	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	PS
1172	6-Police Headquarters	10	PIPES/STORAGE	1	8' Strip Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	PS	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	PS
1173	6-Police Headquarters	11	STAIRS VESTIBULE	1	2'x2' Surface Mounted Box w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast	58	PH	1	New 2'x2' Surface Mount Box w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	PH
1174	6-Police Headquarters	11	STAIRS VESTIBULE	1	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast, Parabolic Diffuser	58	PH	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast, Parabolic Diffuser	45	PH
1175	6-Police Headquarters	12	WOMENS LOCKERS	2	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast	58	PR	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	PR
1176	6-Police Headquarters	12	WOMENS LOCKERS	1	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	PR	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PR
1177	6-Police Headquarters	13	WOMENS RESTROOM	4	Compact Fluorescent Recessed Fixture w/ 15w Compact Fluorescent Lamp & Magnetic Ballast	17	PR	4	No Retrofit Proposed	17	PR
1178	6-Police Headquarters	13	WOMENS RESTROOM	1	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	PR	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PR
1179	6-Police Headquarters	14	FITNESS ROOM	7	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast, Parabolic Diffuser	58	PO	7	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PO
1180	6-Police Headquarters	15	MENS RESTROOM	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	PR	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PR
1181	6-Police Headquarters	15	MENS RESTROOM	6	Compact Fluorescent Recessed Fixture w/ 15w Compact Fluorescent Lamp & Magnetic Ballast	17	PR	6	No Retrofit Proposed	17	PR
1182	6-Police Headquarters	15	MENS RESTROOM	1	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	PR	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PR
1183	6-Police Headquarters	16	MENS LOCKERS	6	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	PR	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PR
1184	6-Police Headquarters	17	OPEN OFFICE	1	1'x8' Recessed Troffer w/ (4) FO32T8 Lamps & (1) Electronic Ballast	112	PO	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	PO
1185	6-Police Headquarters	17	OPEN OFFICE	1	1'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	PO	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PO
1186	6-Police Headquarters	17	OPEN OFFICE	3	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast	58	PO	3	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	PO
1187	6-Police Headquarters	17	OPEN OFFICE	2	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	2	No Retrofit Proposed	30	X
1188	6-Police Headquarters	17	OPEN OFFICE	1	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	PO	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PO
1189	6-Police Headquarters	18	HOLDING CELL	2	4' Vanity Luminaire w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	PO	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PO
1190	6-Police Headquarters	19	OFFICE	1	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	PP	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PP
1191	6-Police Headquarters	20	CORRIDOR	5	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast, Parabolic Diffuser	58	PH	5	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast, Parabolic Diffuser	45	PH
1192	6-Police Headquarters	21a	HOLDING CELL	1	4' Vanity Luminaire w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	PO	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PO
1193	6-Police Headquarters	21b	HOLDING CELL	1	4' Vanity Luminaire w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	PO	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PO
1194	6-Police Headquarters	21c	HOLDING CELL	1	4' Vanity Luminaire w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	PO	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PO

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
1195	6-Police Headquarters	22	VESTIBULE	1	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast	58	PH	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	PH
1196	6-Police Headquarters	22a	HOLDING CELL	1	4' Vanity Luminaire w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	PO	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PO
1197	6-Police Headquarters	22b	HOLDING CELL	1	4' Vanity Luminaire w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	PO	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PO
1198	6-Police Headquarters	23	VESTIBULE	1	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast	58	PH	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	PH
1199	6-Police Headquarters	23a	HOLDING CELL	1	4' Vanity Luminaire w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	PO	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PO
1200	6-Police Headquarters	24	STORAGE	2	4' Strip Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	PS	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PS
1201	6-Police Headquarters	25	GARAGE	2	8' Strip Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	PO	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	PO
1202	6-Police Headquarters	25	GARAGE	2	4' Strip Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	PO	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PO
1203	6-Police Headquarters	26	BOILER ROOM	1	8' Strip Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	PS	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	PS
1204	6-Police Headquarters	26	BOILER ROOM	1	8' Strip Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	PS	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	PS
1205	6-Police Headquarters	26	ELECTRICAL ROOM	1	4' Strip Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	PS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PS
1206	6-Police Headquarters	ST01	STAIRS	1	2'x2' Recessed Troffer w/ (3) FB32T8 3"-U Lamps & (1) Electronic Ballast, Parabolic Lens	88	PH	1	New 2'x2' Surface Mount Box w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	PH
1207	6-Police Headquarters	ST01	STAIRS	5	Compact Fluorescent Fixture w/ (2) 13w Compact Fluorescent Lamps & Magnetic Ballast	30	PH	5	No Retrofit Proposed	30	PH
1208	6-Police Headquarters	ST01	STAIRS	2	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	2	No Retrofit Proposed	30	X
1209	6-Police Headquarters	ST01	STAIRS	2	2'x2' Surface Mounted Box w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast	58	PH	2	New 2'x2' Surface Mount Box w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	PH
1210	6-Police Headquarters	ST02	STAIRS	4	Compact Fluorescent Fixture w/ (2) 13w Compact Fluorescent Lamps & Magnetic Ballast	30	PH	4	No Retrofit Proposed	30	PH
1211	6-Police Headquarters	ST02	STAIRS	1	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	1	No Retrofit Proposed	30	X
1212	6-Police Headquarters	ST02	STAIRS	1	2'x2' Surface Mounted Box w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast	58	PH	1	New 2'x2' Surface Mount Box w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	PH
1213	6-Police Headquarters	E01	ELEVATOR	2	3' Strip w/ (1) F30T12/25w Lamps & (1) Energy Efficient Magnetic Ballast	38	PH	2	Relamp & Reballast w/ (1) F25T8 Lamps & (1) 1/25 Elec. Low-Power High Efficiency Ballast	21	PH
1214	6-Police Headquarters	EXT	BLDG EXTERIOR	10	HID Wall-Pack Fixture w/ (1) 150w Metal Halide Lamp & Ballast	195	E	10	No Retrofit Proposed	195	E
1215	6-Police Headquarters	EXT	BLDG EXTERIOR	1	Compact Fluorescent Jelly Jar Fixture w/ 15w Compact Fluorescent Lamp & Magnetic Ballast	17	E	1	No Retrofit Proposed	17	E
1216	6-Police Headquarters	EXT	BLDG EXTERIOR	2	Incandescent Fixture w/ 18w Screw-In Compact Fluorescent Lamp	18	E	2	No Retrofit Proposed	18	E
1217	6-Police Headquarters	EXT	BLDG EXTERIOR	6	Incandescent Fixture w/ (1) 150w Incandescent BR40 Flood Lamp	150	E	6	New Compact Fluorescent Flood Fixture w/ (2) 42w CF Lamp & Electronic Ballast	90	E
1218	7-Police Garage	EXT	BLDG EXTERIOR	2	HID Wall-Pack Fixture w/ (1) 150w Metal Halide Lamp & Ballast	195	E	2	No Retrofit Proposed	195	E
1219	7-Police Garage	EXT	BLDG EXTERIOR	2	Incandescent Jelly Jar Fixture w/ (1) 52w Incandescent Lamp	52	E	2	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	E
1220	8-Police Annex	EXT	BLDG EXTERIOR	3	HID Fixture w/ (1) 100w High Pressure Sodium	130	E	3	No Retrofit Proposed	130	E
1221	8-Police Annex	EXT	BLDG EXTERIOR	2	HID Wall Mounted Fixture w/ (1) 150w High Pressure Sodium	190	E	2	No Retrofit Proposed	190	E
1222	8-Police Annex	EXT	FRONT DOOR	2	Incandescent Fixture w/ (1) 150w Incandescent BR40 Flood Lamp	150	E	2	New Compact Fluorescent Flood Fixture w/ (2) 42w CF Lamp & Electronic Ballast	90	E
1223	8-Police Annex	101	ENTRY VESTIBULE	1	Incandescent Fixture w/ (1) 52w Incandescent Lamp	52	PH	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	PH
1224	8-Police Annex	102	LOBBY & OPEN OFFICES	6	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts, Chain Mounted	112	PO	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	PO
1225	8-Police Annex	102	LOBBY & OPEN OFFICES	6	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	PO	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	PO
1226	8-Police Annex	102	LOBBY & OPEN OFFICES	2	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	2	No Retrofit Proposed	30	X
1227	8-Police Annex	103	CONFERENCE ROOM	3	2'x4' Recessed Troffer w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	PM	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	PM

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
1228	8-Police Annex	104	MENS RESTROOM	1	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	PR	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	PR
1229	8-Police Annex	103	CONFERENCE ROOM	1	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	PM	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	PM
1230	8-Police Annex	102a	RESTROOM VESTIBULE	1	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	PH	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	PH
1231	8-Police Annex	105	WOMENS RESTROOM	1	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	PR	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	PR
1232	8-Police Annex	106	OFFICE	6	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast, Opal Lens	73	PP	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PP
1233	8-Police Annex	107	OFFICE	4	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast, Opal Lens	73	PP	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PP
1234	8-Police Annex	108	STORAGE CLOSET	1	2' Strip Fluorescent w/ (1) F20T12 Lamp (1) Standard Magnetic Ballast	32	PS	1	Relamp & Reballast w/ (1) F17T8 Lamp & (1) 1/17 Elec. Low-Power High Efficiency Ballast	15	PS
1235	8-Police Annex	ST01	STAIRS	2	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	PH	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	PH
1236	8-Police Annex	ST01	STAIRS	1	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	1	No Retrofit Proposed	30	X
1237	8-Police Annex	1	RESTROOM HALL	2	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	PH	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	PH
1238	8-Police Annex	2	WOMENS RESTROOM	1	2'x2' Recessed Troffer w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast	58	PR	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	PR
1239	8-Police Annex	3	MENS RESTROOM	1	2'x2' Recessed Troffer w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast	58	PR	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	PR
1240	8-Police Annex	4	CORRIDOR	4	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	PH	4	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	PH
1241	8-Police Annex	4	CORRIDOR	1	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	1	No Retrofit Proposed	30	X
1242	8-Police Annex	4A	ENTRY VESTIBULE	1	Incandescent Fixture w/ (1) 52w Incandescent Lamp	52	PH	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	PH
1243	8-Police Annex	5	LOCKERS	4	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	PR	4	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	PR
1244	8-Police Annex	6	OFFICE	4	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	PP	4	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	PP
1245	8-Police Annex	7	STORAGE	4	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	PS	4	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	PS
1246	8-Police Annex	7A	TELEPHONE ROOM	1	4' Strip Fluorescent w/ (1) F40T12/34w Lamp & (1) Energy Efficient Magnetic Ballast	42	PS	1	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	PS
1247	8-Police Annex	7B	TELEPHONE RM/STORAGE	2	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	PS	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	PS
1248	8-Police Annex	8	OFFICES/CORRIDOR	9	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	PH	9	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	PH
1249	8-Police Annex	9	OFFICE	2	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	PP	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	PP
1250	8-Police Annex	10	OFFICE	7	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	PO	7	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	PO
1251	8-Police Annex	11	STORAGE	1	4' Strip Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	PS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PS
1252	8-Police Annex	3A	OFFICE	6	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	PO	6	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	PO
1253	8-Police Annex	4A	MECHANICAL ROOM	1	4' Strip Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast, Chain Mounted	73	PS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PS
1254	8-Police Annex	4A	MECHANICAL ROOM	1	4' Strip Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	PS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PS
1255	8-Police Annex	4B	ELECTRICAL ROOM	1	4' Strip Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast, Chain Mounted	73	PS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	PS
1256	8-Police Annex	4A	MECHANICAL ROOM	1	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	1	No Retrofit Proposed	30	X
1257	5-City Hall	1A	KITCHEN	6	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast, Parabolic Diffuser	73	CHO	6	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast, Parabolic Diffuser	45	CHO
1258	5-City Hall	1A	KITCHEN	2	Compact Fluorescent Jelly Jar Fixture w/ 15w Compact Fluorescent Lamp & Magnetic Ballast	17	CHO	2	No Retrofit Proposed	17	CHO
1259	5-City Hall	1B	EXITWAY	1	2'x2' Surface Mounted Box w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHO	1	New 2'x2' Surface Mount Box w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHO

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
1260	5-City Hall	1A	KITCHEN AREA	5	Incandescent Recessed Fixture w/ 23w Screw-In Compact Fluorescent Lamp	23	CHO	5	No Retrofit Proposed	23	CHO
1261	5-City Hall	1A	KITCHEN AREA	2	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast, Parabolic Diffuser	73	CHO	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast, Parabolic Diffuser	45	CHO
1262	5-City Hall	1A	KITCHEN AREA	1	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHO	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHO
1263	5-City Hall	1	CAFETERIA	4	4' Strip Fluorescent w/ (1) F40T12/34w Lamp & (1) Energy Efficient Magnetic Ballast, Wall Mounted	42	CHO	4	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	CHO
1264	5-City Hall	1	CAFETERIA	12	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast, Parabolic Diffuser	73	CHO	12	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast, Parabolic Diffuser	45	CHO
1265	5-City Hall	1	CAFETERIA	1	Incandescent Fixture w/ (1) 150w Incandescent BR40 Lamp	150	CHO	1	No Retrofit Proposed	150	CHO
1266	5-City Hall	1	CAFETERIA	1	Incandescent Recessed Fixture w/ (1) 52w Incandescent Lamp	52	CHO	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	CHO
1267	5-City Hall	1	CAFETERIA	1	Incandescent Recessed Fixture w/ 23w Screw-In Compact Fluorescent Lamp	23	CHO	1	No Retrofit Proposed	23	CHO
1268	5-City Hall	1	CAFETERIA	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
1269	5-City Hall	2	HALLWAY	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	CHH	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHH
1270	5-City Hall	3	WAIT AREA, 10A	2	2'x4' Recessed Troffer w/ (2) F40T12/34w Lamps & (1) Electronic Ballast	60	CHM	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHM
1271	5-City Hall	4	OPEN OFFICE	4	2'x4' Recessed Troffer w/ (4) F40T12/34w Lamps & (2) Electronic Ballasts	120	CHO	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	CHO
1272	5-City Hall	4	OPEN OFFICE	1	2'x2' Recessed Troffer w/ (2) FB32T8 6"-U Lamps & (1) Electronic Ballast	58	CHO	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHO
1273	5-City Hall	1C	CLOSET	1	Incandescent Bare Socket Fixture w/ (1) 52w Incandescent Lamp	52	CHS	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	CHS
1274	5-City Hall	4A	STORAGE/CORRIDOR	1	2'x4' Recessed Troffer w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHS
1275	5-City Hall	4B	OFFICE/CORRIDOR	1	2'x4' Recessed Troffer w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHO	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	CHO
1276	5-City Hall	4B	OFFICE/CORRIDOR	1	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHO	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHO
1277	5-City Hall	4C	OFFICE	5	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHO	5	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHO
1278	5-City Hall	5	OFFICE, 10B	9	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHO	9	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHO
1279	5-City Hall	5A	BREAK/STORAGE, 10B	1	2'x4' Recessed Troffer w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	CHS
1280	5-City Hall	5B	CONFERENCE ROOM, 10B	1	2'x4' Recessed Troffer w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHM	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	CHM
1281	5-City Hall	5	ENTRY VESTIBULE, 10B	1	Incandescent Recessed Fixture w/ 23w Screw-In Compact Fluorescent Lamp	23	CHH	1	No Retrofit Proposed	23	CHH
1282	5-City Hall	6	OFFICE, 10C	2	2'x4' Recessed Troffer w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHP	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHP
1283	5-City Hall	7	CORRIDOR	3	Exit Sign w/ LED	2	X	3	No Retrofit Proposed	2	X
1284	5-City Hall	7	CORRIDOR	1	Incandescent Fixture w/ 23w Screw-In Compact Fluorescent Lamp	23	CHH	1	No Retrofit Proposed	23	CHH
1285	5-City Hall	7	CORRIDOR	1	Incandescent Fixture w/ (1) 50w Incandescent Lamp	50	CHH	1	No Retrofit Proposed	50	CHH
1286	5-City Hall	7	CORRIDOR	2	Incandescent Fixture w/ 23w Screw-In Compact Fluorescent Lamp	23	CHH	2	No Retrofit Proposed	23	CHH
1287	5-City Hall	8	CORRIDOR	3	Incandescent Downlight Fixture w/ (1) 20w Incandescent PAR20 Lamp, Dimmer Controlled	20	CHH	3	No Retrofit Proposed	20	CHH
1288	5-City Hall	8	CORRIDOR	1	Incandescent Downlight Fixture w/ (1) 150w Incandescent Lamp, Dimmer Controlled	150	CHH	1	No Retrofit Proposed	150	CHH
1289	5-City Hall	9	OPEN OFFICES	1	2'x2' Recessed Troffer w/ (2) FB40T12/40w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	86	CHO	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHO
1290	5-City Hall	9	OPEN OFFICES	5	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	CHO	5	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHO
1291	5-City Hall	9A	COPY AREA	2	2'x2' Recessed Troffer w/ (2) FB40T12/40w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	86	CHS	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHS
1292	5-City Hall	10	OPEN OFFICES	7	8' Uplight/Downlight Fluorescent w/ (4) FO32T8 Lamps & (1) Electronic Ballast	112	CHO	7	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	CHO
1293	5-City Hall	10	OPEN OFFICES	1	4' Uplight/Downlight Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Pendent Mounted	58	CHO	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHO

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
1294	5-City Hall	10A	OFFICE	1	4' Uplight/Downlight Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Pendant Mounted	58	CHP	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHP
1295	5-City Hall	10B	OFFICE	1	4' Uplight/Downlight Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Pendant Mounted	58	CHP	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHP
1296	5-City Hall	11	CUBICLES	3	4' Uplight/Downlight Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Pendant Mounted	58	CHO	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHO
1297	5-City Hall	11	CUBICLES	3	8' Uplight/Downlight Fluorescent w/ (4) FO32T8 Lamps & (1) Electronic Ballast	112	CHO	3	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	CHO
1298	5-City Hall	12	STORAGE/HALL	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	CHS	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHS
1299	5-City Hall	12	STORAGE/HALL	1	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	1	New LED Exit Sign	2	X
1300	5-City Hall	12	STORAGE/HALL	1	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHS	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHS
1301	5-City Hall	13	CONFERENCE ROOM	6	Incandescent High Hat Fixture w/ (1) 90w PAR38 Incandescent Lamp, Dimmer Controlled	90	CHM	6	No Retrofit Proposed	90	CHM
1302	5-City Hall	13	CONFERENCE ROOM	4	Incandescent Track Fixture w/ (1) 20w Incandescent PAR20 Lamp, Dimmer Controlled	20	CHM	4	No Retrofit Proposed	20	CHM
1303	5-City Hall	9B	CLOSET	1	Incandescent Wall Mounted Fixture w/ (1) 27w Compact Fluorescent Lamp & Magnetic Ballast	27	CHS	1	No Retrofit Proposed	27	CHS
1304	5-City Hall	14	CUBES/OFFICES	6	8' Uplight/Downlight Fluorescent w/ (4) FO32T8 Lamps & (1) Electronic Ballast	112	CHO	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	CHO
1305	5-City Hall	14	CUBES/OFFICES	6	4' Uplight/Downlight Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast, Pendant Mounted	58	CHO	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHO
1306	5-City Hall	15	LOCKED STACKS	1	8' Wrap Fluorescent w/ (4) FO32T8 Lamps & (2) Electronic Ballasts, Chain Mounted	112	CHO	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	CHO
1307	5-City Hall	15	LOCKED STACKS	2	Compact Fluorescent Keyless Fixture w/ (1) 27w Compact Fluorescent Lamp & Magnetic Ballast	29	CHO	2	No Retrofit Proposed	29	CHO
1308	5-City Hall	15	LOCKED STACKS	1	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	CHO	1	New LED Exit Sign	2	CHO
1309	5-City Hall	0A	STORAGE	2	8' Wrap Fluorescent w/ (4) F40T12/40w Lamps & (2) Energy Efficient Magnetic Ballasts	172	CHS	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	CHS
1310	5-City Hall	0B	STORAGE	2	Incandescent Bare Lamp Fixture w/ (1) 300w Incandescent PS Lamp	300	CHS	2	Relamp w/ (1) 60 watt Compact Fluorescent Screw-In, 1" Socket Extender	60	CHS
1311	5-City Hall	0C	STORAGE	4	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	CHS	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHS
1312	5-City Hall	0C	STORAGE	1	8' Strip Fluorescent w/ (2) F40T12/40w Lamps & (1) Energy Efficient Magnetic Ballast, Pendant Mounted	86	CHS	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	CHS
1313	5-City Hall	0D	STORAGE	2	Incandescent Bare Lamp Fixture w/ (1) 90w Incandescent Lamp	90	CHS	2	Relamp w/ (1) 19 watt Compact Fluorescent Screw-In	19	CHS
1314	5-City Hall	0E	STORAGE	5	Incandescent Fixture w/ (1) 52w Incandescent Lamp	52	CHS	5	No Retrofit Proposed	52	CHS
1315	5-City Hall	0F	STORAGE	2	Compact Fluorescent Keyless Fixture w/ (1) 27w Compact Fluorescent Lamp & Magnetic Ballast	29	CHS	2	No Retrofit Proposed	29	CHS
1316	5-City Hall	0G	STORAGE	2	4' Wrap Fluorescent w/ (2) F40T12/40w Lamps & (1) Energy Efficient Magnetic Ballast, Chain Mount	86	CHS	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHS
1317	5-City Hall	0G	STORAGE	1	1'x8' Surface Mounted Box w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHS	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	CHS
1318	5-City Hall	0H	STORAGE	9	Incandescent Bare Socket Fixture w/ (1) 52w Incandescent Lamp	52	CHS	9	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	CHS
1319	5-City Hall	0H	STORAGE	4	4' Wrap Fluorescent w/ (2) F40T12/40w Lamps & (1) Energy Efficient Magnetic Ballast	86	CHS	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHS
1320	5-City Hall	0H	STORAGE	2	8' Wrap Fluorescent w/ (4) F40T12/40w Lamps & (2) Energy Efficient Magnetic Ballasts	172	CHS	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	CHS
1321	5-City Hall	0I	EXERCISE ROOM	9	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHM	9	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHM
1322	5-City Hall	0I	WOMENS CHANGE ROOM	1	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHR	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHR
1323	5-City Hall	0I	MENS CHANGE ROOM	1	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHR	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHR
1324	5-City Hall	15A	STACKS/STORAGE	4	Compact Fluorescent Keyless Fixture w/ (1) 27w Compact Fluorescent Lamp & Magnetic Ballast	29	CHS	4	No Retrofit Proposed	29	CHS
1325	5-City Hall	15B	ELEVATOR ROOM	1	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHS	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHS
1326	5-City Hall	15	STORAGE CAGES	2	Incandescent Fixture w/ (1) 52w Incandescent Lamp	52	CHS	2	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	CHS
1327	5-City Hall	15	STORAGE CAGES	2	Incandescent Fixture w/ (1) 52w Incandescent Lamp	52	CHS	2	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	CHS

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
1328	5-City Hall	15	STORAGE CAGES	2	Incandescent Fixture w/ (1) 90w Incandescent Lamp	90	CHS	2	Relamp w/ (1) 19 watt Compact Fluorescent Screw-In	19	CHS
1329	5-City Hall	15	STORAGE CAGES	4	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast, Chain Mounted	73	CHS	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHS
1330	5-City Hall	15	STORAGE CAGES	2	4' Fluorescent Ice Tray w/ (2) F40T12/40w Lamps & (1) Energy Efficient Magnetic Ballast, Pendant Mount	86	CHS	2	New 4' Wrap Fixture w/ (1) F28T8 Lamp & (1) 1/32 Elec. Normal-Power High Efficiency Ballast	25	CHS
1331	5-City Hall	15	STORAGE CAGES	2	Incandescent Fixture w/ (1) 52w Incandescent Lamp	52	CHS	2	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	CHS
1332	5-City Hall	15	STORAGE CAGES	4	Incandescent Fixture w/ (1) 52w Incandescent Lamp	52	CHS	4	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	CHS
1333	5-City Hall	15	STORAGE CAGES	2	Incandescent Fixture w/ (1) 52w Incandescent Lamp	52	CHS	2	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	CHS
1334	5-City Hall	ST1	BASEMENT STAIR LANDING	1	2'x2' Recessed Troffer w/ (2) FB40T12/40w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	86	CHS	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHS
1335	5-City Hall	16	OFFICE, 15	2	2'x2' Recessed Troffer w/ (2) FB40T12/40w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	86	CHP	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHP
1336	5-City Hall	16	ENTRYWAY	1	2'x2' Recessed Troffer w/ (2) FB40T12/40w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	86	CHH	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHH
1337	5-City Hall	17	MECHANICAL ROOM	4	4' Industrial Hood w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHS	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHS
1338	5-City Hall	18	JANITOR CLOSET	1	Incandescent Wall Mounted Fixture w/ (1) 27w Compact Fluorescent Lamp & Magnetic Ballast	27	CHS	1	No Retrofit Proposed	27	CHS
1339	5-City Hall	19	CORRIDOR	3	4' Wrap Fluorescent w/ (1) F40T12/34w Lamp & (1) Energy Efficient Magnetic Ballast	42	CHH	3	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	CHH
1340	5-City Hall	19	CORRIDOR	3	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	CHH	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHH
1341	5-City Hall	19	CORRIDOR	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
1342	5-City Hall	20	CORRIDOR	4	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	CHH	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHH
1343	5-City Hall	21	COPY ROOM	4	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHS	4	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHS
1344	5-City Hall	22	OFFICE, 22	1	2'x4' Recessed Troffer w/ (4) F40T12/34w Lamps & (2) Electronic Ballasts	120	CHP	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	CHP
1345	5-City Hall	23	PRINT SHOP	3	2'x4' Recessed Troffer w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	CHO	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	CHO
1346	5-City Hall	23	PRINT SHOP	1	2'x4' Chain Mounted Box w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	CHO	1	Relamp & Reballast w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	CHO
1347	5-City Hall	24	PRINT SHOP	6	2'x4' Recessed Troffer w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	CHO	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	CHO
1348	5-City Hall	24A	CLOSET	1	Incandescent Fixture w/ (1) 52w Incandescent Lamp	52	CHS	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	CHS
1349	5-City Hall	25	COMPUTER ROOM	8	2'x4' Recessed Troffer w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHM	8	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHM
1350	5-City Hall	26	STORAGE CLOSET	1	8' Industrial Hood w/ (2) F96T12/65w Lamps & (1) Energy Efficient Magnetic Ballast, Pendant Mounted	123	CHS	1	New 8' Industrial Fixture w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast	65	CHS
1351	5-City Hall	27	MECHANICAL ROOM	1	2'x2' Recessed Troffer w/ (2) FB40T12/40w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	86	CHS	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHS
1352	5-City Hall	28	EQUIPMENT STORAGE	3	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHS	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHS
1353	5-City Hall	29	CUSTODIAL OFFICE	1	4' Wrap Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	CHP	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHP
1354	5-City Hall	30	MENS RESTROOM	4	4' Wrap Fluorescent w/ (1) F32T8 Lamp & (1) Electronic Ballast, Pendant Mounted	32	CHR	4	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	CHR
1355	5-City Hall	0I	CORRIDOR	1	8' Wrap Fluorescent w/ (2) F40T12/40w Lamps & (1) Energy Efficient Magnetic Ballast	86	CHH	1	Relamp & Reballast an 8' Fixture w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHH
1356	5-City Hall	0I	CORRIDOR	4	4' Wrap Fluorescent w/ (1) F40T12/40w Lamp & (1) Energy Efficient Magnetic Ballast	50	CHH	4	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	CHH
1357	5-City Hall	0I	CORRIDOR	2	Exit Sign w/ LED	2	X	2	No Retrofit Proposed	2	X
1358	5-City Hall	0I	CORRIDOR	5	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHH	5	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHH
1359	5-City Hall	0J	VALUATION OFFICE	1	Incandescent Bare Lamp Fixture w/ (1) 300w Incandescent PS Lamp	300	CHO	1	Relamp w/ (1) 60 watt Compact Fluorescent Screw-In, 1" Socket Extender	60	CHO
1360	5-City Hall	0K	OFFICE, 10E	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	CHP	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHP
1361	5-City Hall	0K	OFFICE	2	2'x4' Recessed Troffer w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	CHP	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHP

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
1362	5-City Hall	0L	WOMENS RESTROOM	1	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHR	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHR
1363	5-City Hall	0L	WOMENS RESTROOM	1	3' Strip w/ (1) F30T12/25w Lamps & (1) Energy Efficient Magnetic Ballast, Wall Mounted	38	CHR	1	Relamp & Reballast w/ (1) F25T8 Lamps & (1) 1/25 Elec. Low-Power High Efficiency Ballast	21	CHR
1364	5-City Hall	31	BOILER ROOM	1	Incandescent Bare Lamp Fixture w/ (1) 50w Incandescent Lamp	50	CHS	1	No Retrofit Proposed	50	CHS
1365	5-City Hall	31	BOILER ROOM	5	4' Vapor-Tight Wrap w/ (2) F32T8 Lamps & (1) Electronic Ballast, Pendent Mounted	58	CHS	5	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHS
1366	5-City Hall	31	BOILER ROOM	1	Incandescent Bare Lamp Fixture w/ (1) 50w Incandescent Lamp	50	CHS	1	No Retrofit Proposed	50	CHS
1367	5-City Hall	31	BOILER ROOM	4	Incandescent Poker Hat Fixture w/ (1) 90w Incandescent Lamp	90	CHS	4	Relamp w/ (1) 19 watt Compact Fluorescent Screw-In	19	CHS
1368	5-City Hall	19	CORRIDOR	1	4' Wrap Fluorescent w/ (1) F40T12/34w Lamp & (1) Energy Efficient Magnetic Ballast	42	CHH	1	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	CHH
1369	5-City Hall	200	207 INSPECTION	17	2'x4' Recessed Troffer w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHO	17	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	CHO
1370	5-City Hall	201	207 INSPECTION	3	2'x4' Recessed Troffer w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	CHO	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	CHO
1371	5-City Hall	202	207 INSPECTION	1	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	1	New LED Exit Sign	2	X
1372	5-City Hall	203	207 INSPECTION	1	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHO	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHO
1373	5-City Hall	204	207 INSPECTION	8	Incandescent Wall Mounted Fixture w/ (1) 27w Compact Fluorescent Lamp & Magnetic Ballast	27	CHO	8	No Retrofit Proposed	27	CHO
1374	5-City Hall	205	207 INSPECTION	2	2'x2' Recessed Troffer w/ (2) FB32T8 3"-U Lamps & (1) Electronic Ballast	58	CHO	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHO
1375	5-City Hall	206	OFFICE 207A	4	2'x4' Recessed Troffer w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHP	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	CHP
1376	5-City Hall	207	STAIRS 207	1	4' Strip Fluorescent w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	CHH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHH
1377	5-City Hall	208	OFFICE 207B	4	2'x4' Recessed Troffer w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHP	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	CHP
1378	5-City Hall	209	HALL 207	3	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHH	3	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHH
1379	5-City Hall	210	JC 207	1	Incandescent Bare Lamp Fixture w/ (1) 60w Incandescent Lamp	60	CHS	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	CHS
1380	5-City Hall	211	HALL 2ND	9	Compact Fluorescent Globe Fixture w/ (1) 27w Compact Fluorescent Lamp & Magnetic Ballast	29	CHH	9	No Retrofit Proposed	29	CHH
1381	5-City Hall	212	HALL 2ND	4	Compact Fluorescent Wall Wash Fixture w/ (2) 20w Compact Fluorescent Lamp & Magnetic Ballast	44	CHH	4	No Retrofit Proposed	44	CHH
1382	5-City Hall	213	MENS 207	3	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHR	3	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHR
1383	5-City Hall	214		4	8' Wrap Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHO	4	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	CHO
1384	5-City Hall	215	STAIR 211	1	4' Wrap Fluorescent w/ (1) F40T12/34w Lamp & (1) Energy Efficient Magnetic Ballast	42	CHH	1	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	CHH
1385	5-City Hall	216	STAIR 211	1	Compact Fluorescent Globe Fixture w/ (1) 27w Compact Fluorescent Lamp & Magnetic Ballast	29	CHH	1	No Retrofit Proposed	29	CHH
1386	5-City Hall	217	BALCONY 300	11	Incandescent Wall Mounted Fixture w/ (1) 27w Compact Fluorescent Lamp & Magnetic Ballast	27	CHO	11	No Retrofit Proposed	27	CHO
1387	5-City Hall	218	ATTIC	10	Incandescent Wall Mounted Fixture w/ (1) 27w Compact Fluorescent Lamp & Magnetic Ballast	27	CHS	10	No Retrofit Proposed	27	CHS
1388	5-City Hall	219		8	Incandescent Wall Mounted Fixture w/ (1) 27w Compact Fluorescent Lamp & Magnetic Ballast	27	CHS	8	No Retrofit Proposed	27	CHS
1389	5-City Hall	220	COPY 211	4	Incandescent Track Light Fixture w/ (1) 60w Incandescent Lamp	60	CHS	4	Relamp w/ (1) 15 watt Compact Fluorescent Screw-In, w/ R30 Reflector, Dimmable Ballast	15	CHS
1390	5-City Hall	221	HALL 211	1	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHH	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHH
1391	5-City Hall	222	211A	1	Incandescent Ceiling Fan Fixture w/ (3) 60w Incandescent Lamps	180	CHO	1	No Retrofit Proposed	180	CHO
1392	5-City Hall	223	211B	2	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHO	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHO
1393	5-City Hall	224	211B	2	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHO	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHO
1394	5-City Hall	225	211C	1	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHO	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHO

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
1395	5-City Hall	226	211D	1	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHO	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHO
1396	5-City Hall	227	HALL 211D	2	Compact Fluorescent Fixture w/ (2) 15w Compact Fluorescent Lamp & Magnetic Ballast, Surface Mounted	34	CHH	2	No Retrofit Proposed	34	CHH
1397	5-City Hall	228	MAYOR	4	8' Wrap Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHP	4	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	CHP
1398	5-City Hall	229	STAIR 211A	1	4' Wrap Fluorescent w/ (1) F40T12/34w Lamp & (1) Energy Efficient Magnetic Ballast	42	CHH	1	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	CHH
1399	5-City Hall	230	STAIR 211A	1	Compact Fluorescent Globe Fixture w/ (1) 27w Compact Fluorescent Lamp & Magnetic Ballast	29	CHH	1	No Retrofit Proposed	29	CHH
1400	5-City Hall	231		4	8' Wrap Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHP	4	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	CHP
1401	5-City Hall	232		1	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHP	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHP
1402	5-City Hall	233	HALL 214	2	8' Wrap Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHH	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	CHH
1403	5-City Hall	234	HALL 214	1	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHH
1404	5-City Hall	235	HALL 214	1	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	1	New LED Exit Sign	2	X
1405	5-City Hall	236	214A	1	8' Wrap Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHP	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	CHP
1406	5-City Hall	237	214B	1	8' Wrap Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHP	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	CHP
1407	5-City Hall	238	214C	1	8' Wrap Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHP	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	CHP
1408	5-City Hall	239	214D	2	8' Wrap Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHP	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	CHP
1409	5-City Hall	240	214E	4	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHP	4	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHP
1410	5-City Hall	241	STAIR 214	1	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHH
1411	5-City Hall	242	HALL 214B	1	4' Wrap Fluorescent w/ (1) F40T12/34w Lamp & (1) Energy Efficient Magnetic Ballast	42	CHH	1	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	CHH
1412	5-City Hall	243	HALL 214B	1	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	1	New LED Exit Sign	2	X
1413	5-City Hall	244	214F	3	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHP	3	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHP
1414	5-City Hall	245	214G	1	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHP	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHP
1415	5-City Hall	246	214G	1	8' Wrap Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHP	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	CHP
1416	5-City Hall	247	214H	1	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHP	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHP
1417	5-City Hall	248	214H	1	8' Wrap Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHP	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	CHP
1418	5-City Hall	249	218 PERSONAL	20	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHO	20	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHO
1419	5-City Hall	250	218A	2	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHP	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHP
1420	5-City Hall	251	STAIR 218	1	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHH
1421	5-City Hall	252	220 MIS	6	2'x4' Recessed Troffer w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHO	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHO
1422	5-City Hall	253	220A	4	2'x4' Recessed Troffer w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHM	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHM
1423	5-City Hall	254	WOMEN	4	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHR	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHR
1424	5-City Hall	255	BATH	1	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHR	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHR
1425	5-City Hall	256		4	8' Wrap Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHM	4	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	CHM
1426	5-City Hall	257		8	Incandescent Decorative Fixture w/ (1) 60w Incandescent Lamp	60	CHM	8	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	CHM

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
1427	5-City Hall	258	222 STORAGE	1	Incandescent Fixture w/ (1) 60w Incandescent Lamp, Wall Mounted	60	CHS	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	CHS
1428	5-City Hall	259	222HALL	1	Incandescent Fixture w/ (1) 60w Incandescent Lamp, Wall Mounted	60	CHH	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	CHH
1429	5-City Hall	260	201 ASSEMBLY	60	Incandescent Wall Mounted Fixture w/ (1) 27w Compact Fluorescent Lamp & Magnetic Ballast	27	CHM	60	No Retrofit Proposed	27	CHM
1430	5-City Hall	261	201 ASSEMBLY	3	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	3	No Retrofit Proposed	30	X
1431	5-City Hall	262	HALL 201	2	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHH	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHH
1432	5-City Hall	263	STORAGE 201	6	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHS	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHS
1433	5-City Hall	264	STAIR 201 TO ATTIC	5	Incandescent Flood Fixture w/ (1) 90w Incandescent Lamp	90	CHS	5	No Retrofit Proposed	90	CHS
1434	5-City Hall	265	STAIR 201 TO ATTIC	3	Incandescent Bare Lamp Fixture w/ (1) 60w Incandescent Lamp	60	CHS	3	No Retrofit Proposed	60	CHS
1435	5-City Hall	266	STAIR 201 TO ATTIC	3	4' Industrial Hood w/ (2) F32T8 Lamps & (1) Electronic Ballast	58	CHS	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHS
1436	5-City Hall	267	ASSEMBLY 220	88	Incandescent Fixture w/ 15w Screw-In Compact Fluorescent Lamp	15	CHM	88	No Retrofit Proposed	15	CHM
1437	5-City Hall	268	ASSEMBLY 220	7	Exit Sign w/ (2) 15 Watt Incandescent Lamps, Recessed Into Wall	30	X	7	No Retrofit Proposed	30	X
1438	5-City Hall	269	STAIR 201B	12	Incandescent Fixture w/ 15w Screw-In Compact Fluorescent Lamp	15	CHH	12	No Retrofit Proposed	15	CHH
1439	5-City Hall	270	STAIR 201A	10	Incandescent Fixture w/ 15w Screw-In Compact Fluorescent Lamp	15	CHH	10	No Retrofit Proposed	15	CHH
1440	5-City Hall	271	HALL 220	8	Incandescent Fixture w/ 15w Screw-In Compact Fluorescent Lamp	15	CHH	8	No Retrofit Proposed	15	CHH
1441	5-City Hall	272	HALL 220	1	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	1	New LED Exit Sign	2	X
1442	5-City Hall	273	ENTRY 220	3	Incandescent Fixture w/ 15w Screw-In Compact Fluorescent Lamp	15	CHH	3	No Retrofit Proposed	15	CHH
1443	5-City Hall	274	STORAGE 220	1	Incandescent Bare Lamp Fixture w/ (1) 60w Incandescent Lamp	60	CHS	1	Relamp w/ (1) 19 watt Compact Fluorescent Screw-In	19	CHS
1444	5-City Hall	275	STAIR 220A	3	Incandescent Fixture w/ 15w Screw-In Compact Fluorescent Lamp	15	CHH	3	No Retrofit Proposed	15	CHH
1445	5-City Hall	276	STAIR 220B	3	Incandescent Fixture w/ 15w Screw-In Compact Fluorescent Lamp	15	CHH	3	No Retrofit Proposed	15	CHH
1446	5-City Hall	277	STAIR 220C	2	Incandescent Fixture w/ 15w Screw-In Compact Fluorescent Lamp	15	CHH	2	No Retrofit Proposed	15	CHH
1447	5-City Hall	278		4	8' Wrap Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHP	4	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	CHP
1448	5-City Hall	279	222 STORAGE	1	Incandescent Fixture w/ (1) 60w Incandescent Lamp, Wall Mounted	60	CHS	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	CHS
1449	5-City Hall	280	222 HALL	1	Incandescent Fixture w/ (1) 60w Incandescent Lamp, Wall Mounted	60	CHH	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	CHH
1450	5-City Hall	281	203 LOUNGE	2	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHM	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHM
1451	5-City Hall	282	203 STORAGE	2	Incandescent Fixture w/ 15w Screw-In Compact Fluorescent Lamp	15	CHS	2	No Retrofit Proposed	15	CHS
1452	5-City Hall	283	WOMEN	2	4' Wrap Fluorescent w/ (1) F40T12/34w Lamp & (1) Energy Efficient Magnetic Ballast	42	CHR	2	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	CHR
1453	5-City Hall	284	204 PURCHASE	5	2'x4' Recessed Troffer w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHO	5	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	CHO
1454	5-City Hall	285	204 PURCHASE	1	2'x4' Recessed Troffer w/ (4) FO32T8 Lamps & (2) Electronic Ballasts	112	CHO	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	CHO
1455	5-City Hall	286	204 PURCHASE	1	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHO	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHO
1456	5-City Hall	287	204A	2	2'x4' Recessed Troffer w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHP	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	CHP
1457	5-City Hall	288	STAIR 204	1	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHH
1458	5-City Hall	100	STAIR 102	1	4' Wrap Fluorescent w/ (1) F40T12/34w Lamp & (1) Energy Efficient Magnetic Ballast	42	CHH	1	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	CHH
1459	5-City Hall	101	102 PUBLIC WORKS	6	8' Wrap Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHO	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	CHO
1460	5-City Hall	102	102A	1	8' Wrap Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHP	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	CHP
1461	5-City Hall	103	102A	1	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHP	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHP
1462	5-City Hall	104	102B	4	8' Wrap Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHP	4	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	CHP
1463	5-City Hall	105	102B	5	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHP	5	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHP
1464	5-City Hall	106	101 CLERK	18	2'x4' Recessed Troffer w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHO	18	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	CHO
1465	5-City Hall	107	101A	5	2'x4' Recessed Troffer w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHP	5	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	CHP

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
1466	5-City Hall	108	VAULT	2	4' Wrap Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHS	2	Relamp & Reballast w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast, Tube Guard	84	CHS
1467	5-City Hall	109	HALL 100	8	Compact Fluorescent Globe Fixture w/ (1) 27w Compact Fluorescent Lamp & Magnetic Ballast	29	CHH	8	No Retrofit Proposed	29	CHH
1468	5-City Hall	110	HALL 100	18	Compact Fluorescent Fixture w/ 15w Compact Fluorescent Lamp & Magnetic Ballast, Wall Mounted	17	CHH	18	No Retrofit Proposed	17	CHH
1469	5-City Hall	111	HALL 100	3	Exit Sign w/ LED	2	X	3	No Retrofit Proposed	2	X
1470	5-City Hall	112	HALL 100	1	Incandescent Wall Mounted Fixture w/ (1) 27w Compact Fluorescent Lamp & Magnetic Ballast	27	CHH	1	No Retrofit Proposed	27	CHH
1471	5-City Hall	113	HALL 100	1	Incandescent Wall Mounted Fixture w/ (1) 27w Compact Fluorescent Lamp & Magnetic Ballast	27	CHH	1	No Retrofit Proposed	27	CHH
1472	5-City Hall	114	ENTRY 100	2	Incandescent Recessed Fixture w/ (1) 60w Incandescent Lamp	60	CHH	2	Relamp w/ (1) 19 watt Compact Fluorescent Screw-In	19	CHH
1473	5-City Hall	115	STAIRS 100A	1	4' Wrap Fluorescent w/ (1) F40T12/34w Lamp & (1) Energy Efficient Magnetic Ballast	42	CHH	1	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	CHH
1474	5-City Hall	116	STAIRS 100A	3	Compact Fluorescent Fixture w/ 15w Compact Fluorescent Lamp & Magnetic Ballast, Wall Mounted	17	CHH	3	No Retrofit Proposed	17	CHH
1475	5-City Hall	117	STAIRS 100B	1	4' Wrap Fluorescent w/ (1) F40T12/34w Lamp & (1) Energy Efficient Magnetic Ballast	42	CHH	1	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	CHH
1476	5-City Hall	118	STAIRS 100B	3	Compact Fluorescent Fixture w/ 15w Compact Fluorescent Lamp & Magnetic Ballast, Wall Mounted	17	CHH	3	No Retrofit Proposed	17	CHH
1477	5-City Hall	119	HALL 100B	3	Compact Fluorescent Globe Fixture w/ (1) 27w Compact Fluorescent Lamp & Magnetic Ballast	29	CHH	3	No Retrofit Proposed	29	CHH
1478	5-City Hall	120	HALL 100B	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
1479	5-City Hall	121	DISPLAY	44	Incandescent Fixture w/ 15w Screw-In Compact Fluorescent Lamp	15	CHH	44	No Retrofit Proposed	15	CHH
1480	5-City Hall	122	HALL 100C	12	Incandescent Fixture w/ 15w Screw-In Compact Fluorescent Lamp	15	CHH	12	No Retrofit Proposed	15	CHH
1481	5-City Hall	123	HALL 100G	5	4' Wrap Fluorescent w/ (1) F40T12/34w Lamp & (1) Energy Efficient Magnetic Ballast	42	CHH	5	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	CHH
1482	5-City Hall	124	HALL 100G	1	8' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHH	1	Relamp & Reballast an 8' Fixture w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHH
1483	5-City Hall	125	HALL 100G	3	Exit Sign w/ LED	2	X	3	No Retrofit Proposed	2	X
1484	5-City Hall	126	100 VETRANS	12	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHO	12	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHO
1485	5-City Hall	127	100A	1	8' Wrap Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHP	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	CHP
1486	5-City Hall	128	116 ASSESING	6	2'x4' Recessed Troffer w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHO	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHO
1487	5-City Hall	129	116A	6	2'x4' Recessed Troffer w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHO	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHO
1488	5-City Hall	130	WOMENS	1	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHR	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHR
1489	5-City Hall	131	WOMENS	1	4' Wrap Fluorescent w/ (1) F40T12/34w Lamp & (1) Energy Efficient Magnetic Ballast	42	CHR	1	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	CHR
1490	5-City Hall	132	JC	1	Incandescent Bare Lamp Fixture w/ (1) 60w Incandescent Lamp	60	CHS	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	CHS
1491	5-City Hall	133	JC	1	Incandescent Bare Lamp Fixture w/ (1) 60w Incandescent Lamp	60	CHS	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	CHS
1492	5-City Hall	134	MENS	1	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHR	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHR
1493	5-City Hall	135	MENS	1	4' Wrap Fluorescent w/ (1) F40T12/34w Lamp & (1) Energy Efficient Magnetic Ballast	42	CHR	1	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	CHR
1494	5-City Hall	136	5 DIS VET	2	8' Wrap Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHO	2	Relamp & Reballast w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	CHO
1495	5-City Hall	137	OFF 4	6	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHO	6	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHO
1496	5-City Hall	138	OFF 3 POST	6	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHO	6	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHO
1497	5-City Hall	139	OFF 2	2	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHP	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHP
1498	5-City Hall	140	CONF 1	2	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHM	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHM
1499	5-City Hall	141	116 ASSOR	10	8' Wrap Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHO	10	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	CHO

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
1500	5-City Hall	142	OFF 116A	1	8' Wrap Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHP	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	CHP
1501	5-City Hall	143	OFF 116B	1	8' Wrap Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHP	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	CHP
1502	5-City Hall	144	OFF 116C	1	8' Wrap Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHP	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	CHP
1503	5-City Hall	145	SUPPLIES 116D	1	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHS
1504	5-City Hall	146	115 TRES A	10	2'x4' Recessed Troffer w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHO	10	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHO
1505	5-City Hall	147	115 TRES B	2	2'x4' Recessed Troffer w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHP	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHP
1506	5-City Hall	148	VAULT	1	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHS
1507	5-City Hall	149	115 TRES C	15	2'x4' Recessed Troffer w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHO	15	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHO
1508	5-City Hall	150	115 TRES C	3	2'x4' Recessed Troffer w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHO	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHO
1509	5-City Hall	151	STAIR 115	2	4' Wrap Fluorescent w/ (1) F40T12/34w Lamp & (1) Energy Efficient Magnetic Ballast	42	CHH	2	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	CHH
1510	5-City Hall	152	STAIR 115	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
1511	5-City Hall	153	108C HALL	3	2'x4' Recessed Troffer w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHH	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHH
1512	5-City Hall	154	108D STORAGE	1	4' Fluorescent Ice Tray w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHS	1	New 4' Wrap Fixture w/ (1) F28T8 Lamp & (1) 1/32 Elec. Normal-Power High Efficiency Ballast	25	CHS
1513	5-City Hall	155	108D STORAGE	1	4' Fluorescent Ice Tray w/ (4) F032T8 Lamps & (1) Electronic Ballast	112	CHS	1	New 4' Wrap Fixture w/ (1) F28T8 Lamp & (1) 1/32 Elec. Normal-Power High Efficiency Ballast	25	CHS
1514	5-City Hall	156	108 ACCOUNTING	11	2'x4' Recessed Troffer w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHO	11	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHO
1515	5-City Hall	157	108 A	4	2'x4' Recessed Troffer w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHP	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHP
1516	5-City Hall	158	107A	2	2'x4' Recessed Troffer w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHP	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHP
1517	5-City Hall	159	107 HALL	5	2'x4' Recessed Troffer w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHH	5	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHH
1518	5-City Hall	160	107 HALL	1	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	1	New LED Exit Sign	2	X
1519	5-City Hall	161	107B	2	2'x4' Recessed Troffer w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHP	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHP
1520	5-City Hall	162	107C	3	2'x4' Recessed Troffer w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHP	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHP
1521	5-City Hall	163	107D	2	2'x4' Recessed Troffer w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHP	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHP
1522	5-City Hall	164	107E	2	2'x4' Recessed Troffer w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHP	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	CHP
1523	5-City Hall	165	107 STAIR	1	4' Wrap Fluorescent w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHH	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHH
1524	5-City Hall	166	107 STAIR	1	4' Wrap Fluorescent w/ (1) F40T12/34w Lamp & (1) Energy Efficient Magnetic Ballast	42	CHH	1	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	CHH
1525	5-City Hall	167	107F	6	2'x4' Pendant Mounted Box w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHP	2	Relamp & Reballast w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	CHP
1526	5-City Hall	168	WOMENS	3	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHR	3	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHR
1527	5-City Hall	169	106 ELECTION	7	2'x4' Recessed Troffer w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHO	7	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHO
1528	5-City Hall	170	106A	2	2'x4' Recessed Troffer w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast	73	CHP	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHP
1529	5-City Hall	171	105 WATER	10	2'x4' Recessed Troffer w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast, Parabolic Diffuser	73	CHO	10	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHO
1530	5-City Hall	172	105A COPY	1	2'x4' Recessed Troffer w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast, Parabolic Diffuser	73	CHS	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHS

Lighting Improvements

City of Newton - Phase 2 DEA

ID	Bldg Name	Print	Area Description	Pre Fixture Qty	Existing Description	Pre Watts	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts	Hours Code Post
1531	5-City Hall	173	105B	3	2'x4' Recessed Troffer w/ (2) F40T12/34w Lamps & (1) Energy Efficient Magnetic Ballast, Parabolic Diffuser	73	CHP	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	CHP
1532	5-City Hall	174	105C CLOSET	1	Incandescent Fixture w/ (1) 60w Incandescent Lamp, Wall Mounted	60	CHS	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	CHS
1533	5-City Hall	175	MENS	3	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHR	3	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHR
1534	5-City Hall	176	104 HALL	3	4' Wrap Fluorescent w/ (1) F40T12/34w Lamp & (1) Energy Efficient Magnetic Ballast	42	CHH	3	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	CHH
1535	5-City Hall	177	104 CLOSET	1	Incandescent Wall Mounted Fixture w/ (1) 27w Compact Fluorescent Lamp & Magnetic Ballast	27	CHS	1	No Retrofit Proposed	27	CHS
1536	5-City Hall	178	104 ENG	13	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHO	13	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHO
1537	5-City Hall	179	104A VAULT	2	8' Wrap Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHS	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	CHS
1538	5-City Hall	180	104A VAULT	1	4' Wrap Fluorescent w/ (4) F40T12/34w Lamps & (2) Energy Efficient Magnetic Ballasts	146	CHS	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	CHS
1539	5-City Hall	181	104B	2	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHP	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHP
1540	5-City Hall	182	104C	10	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHO	10	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHO
1541	5-City Hall	183	104C	1	Exit Sign w/ (2) 15 Watt Incandescent Lamps	30	X	1	New LED Exit Sign	2	X
1542	5-City Hall	184	104D	2	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHP	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHP
1543	5-City Hall	185	104E	2	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHP	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHP
1544	5-City Hall	186	104F	4	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHP	4	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHP
1545	5-City Hall	187	104G	2	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHP	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHP
1546	5-City Hall	188	104H	2	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHP	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHP
1547	5-City Hall	189	104I	2	2'x2' Recessed Troffer w/ (2) FB40T12/34w 6"-U Lamps & (1) Energy Efficient Magnetic Ballast	73	CHP	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	CHP
1548	5-City Hall	190	STAIR 104	2	4' Wrap Fluorescent w/ (1) F40T12/34w Lamp & (1) Energy Efficient Magnetic Ballast	42	CHH	2	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	CHH
1549	5-City Hall	191	STAIR 104	1	Exit Sign w/ LED	2	X	1	No Retrofit Proposed	2	X
1550	5-City Hall	300	OUTSIDE 1	2	Compact Fluorescent Wall Mounted Fixture w/ (1) 27w Compact Fluorescent Lamp & Magnetic Ballast	29	E	2	No Retrofit Proposed	29	E
1551	5-City Hall	301	OUTSIDE 1	1	HID Box Fixture w/ (1) 250w Metal Halide Lamp & Ballast	295	E	1	No Retrofit Proposed	295	E
1552	5-City Hall	302	OUTSIDE 1	1	HID Flood Fixture w/ (1) 400w Metal Halide Lamp & Ballast	455	E	1	No Retrofit Proposed	455	E
1553	5-City Hall	303	OUTSIDE 2	2	Incandescent Fixture w/ (1) 60w Incandescent Lamp, Wall Mounted	60	E	2	Relamp w/ (1) 19 watt Compact Fluorescent Screw-In	19	E
1554	5-City Hall	304	OUTSIDE 2	1	HID Flood Fixture w/ (1) 400w Metal Halide Lamp & Ballast	455	E	1	No Retrofit Proposed	455	E
1555	5-City Hall	305	OUTSIDE 3	2	Incandescent Fixture w/ (1) 60w Incandescent Lamp, Wall Mounted	60	E	2	Relamp w/ (1) 19 watt Compact Fluorescent Screw-In	19	E
1556	5-City Hall	306	OUTSIDE 3	1	HID Flood Fixture w/ (1) 400w Metal Halide Lamp & Ballast	455	E	1	No Retrofit Proposed	455	E
1557	5-City Hall	307	OUTSIDE 4	2	Incandescent Fixture w/ (1) 60w Incandescent Lamp, Wall Mounted	60	E	2	Relamp w/ (1) 19 watt Compact Fluorescent Screw-In	19	E
1558	5-City Hall	308	OUTSIDE 4	1	HID Flood Fixture w/ (1) 400w Metal Halide Lamp & Ballast	455	E	1	No Retrofit Proposed	455	E
1559	5-City Hall	309	OUTSIDE 5	2	Compact Fluorescent Wall Mounted Fixture w/ (1) 27w Compact Fluorescent Lamp & Magnetic Ballast	29	E	2	No Retrofit Proposed	29	E
1560	5-City Hall	310	OUTSIDE 5	1	HID Flood Fixture w/ (1) 400w Metal Halide Lamp & Ballast	455	E	1	No Retrofit Proposed	455	E
1561	5-City Hall	311	OUTSIDE 6	1	HID Box Fixture w/ (1) 250w Metal Halide Lamp & Ballast	295	E	1	No Retrofit Proposed	295	E
1562	5-City Hall	312	OUTSIDE 6	1	HID Flood Fixture w/ (1) 400w Metal Halide Lamp & Ballast	455	E	1	No Retrofit Proposed	455	E
1563	5-City Hall	313	OUTSIDE 7	2	Compact Fluorescent Wall Mounted Fixture w/ (1) 27w Compact Fluorescent Lamp & Magnetic Ballast	29	E	2	No Retrofit Proposed	29	E
1564	5-City Hall	314	OUTSIDE 7	2	HID Flood Fixture w/ (1) 400w Metal Halide Lamp & Ballast	455	E	2	No Retrofit Proposed	455	E
1565	5-City Hall	315	OUTSIDE 8	2	Incandescent Fixture w/ (1) 60w Incandescent Lamp, Wall Mounted	60	E	2	Relamp w/ (1) 19 watt Compact Fluorescent Screw-In	19	E
1566	5-City Hall	316	OUTSIDE 8	2	HID Flood Fixture w/ (1) 400w High Pressure Sodium	455	E	2	No Retrofit Proposed	455	E
1567	5-City Hall	317	OUTSIDE 8	2	Incandescent Fixture w/ (1) 60w Incandescent Lamp, Wall Mounted	60	E	2	Relamp w/ (1) 19 watt Compact Fluorescent Screw-In	19	E
1568	5-City Hall	318	OUTSIDE 8	2	HID Flood Fixture w/ (1) 400w Metal Halide Lamp & Ballast	455	E	2	No Retrofit Proposed	455	E

City of Newton Lighting Improvements Hour Groups

Hours Group	Hours Description	Time Periods	Extra Description	Total Annual Hours
A	12:00AM - 12:00AM	Mon-Sun	24/7	8,760
BICR	7:00AM - 5:00PM	Mon-Fri	GYM	1,745
BIGYM	7:00AM - 5:00PM	Mon-Fri	GYM	3,211
BIH	7:00AM - 5:00PM	Mon-Fri	HALLS	4,408
BIM	7:00AM - 5:00PM	Mon-Fri	MEETING ROOMS	1,609
BIO	7:00AM - 5:00PM	Mon-Fri	OPEN OFFCIE SPACE	2,762
BIP	7:00AM - 5:00PM	Mon-Fri	PRIVATE OFFICES	1,406
BIR	7:00AM - 5:00PM	Mon-Fri	RESTROOMS	2,755
BIS	7:00AM - 5:00PM	Mon-Fri	STORAGE ROOMS	2,870
BRCR	7:00AM - 5:00PM	Mon-Fri	CLASSROOMS	1,439
BRGYM	7:00AM - 5:00PM	Mon-Fri	GYM	3,643
BRH	7:00AM - 5:00PM	Mon-Fri	HALLS	6,241
BRM	7:00AM - 5:00PM	Mon-Fri	MEETING ROOMS	1,433
BRO	7:00AM - 5:00PM	Mon-Fri	OPEN OFFCIE SPACE	2,911
BRP	7:00AM - 5:00PM	Mon-Fri	PRIVATE OFFICES	1,509
BRR	7:00AM - 5:00PM	Mon-Fri	RESTROOMS	2,586
BRS	7:00AM - 5:00PM	Mon-Fri	STORAGE ROOMS	5,606
CHH	7:00AM - 5:00PM	Mon-Fri	HALLS	5,606
CHM	7:00AM - 5:00PM	Mon-Fri	MEETING ROOMS	8,735
CHO	7:00AM - 5:00PM	Mon-Fri	OPEN OFFCIE SPACE	2,701
CHP	7:00AM - 5:00PM	Mon-Fri	PRIVATE OFFICES	1,540
CHR	7:00AM - 5:00PM	Mon-Fri	RESTROOMS	4,342
CHS	7:00AM - 5:00PM	Mon-Fri	STORAGE ROOMS	2,702
E	7:00AM - 5:00PM	Mon-Fri	EXTERIOR	4,386
EDCR	7:00AM - 5:00PM	Mon-Fri	CLASSROOMS	2,113
EDGYM	7:00AM - 5:00PM	Mon-Fri	GYM	2,784
EDH	7:00AM - 5:00PM	Mon-Fri	HALLS	3,338
EDM	7:00AM - 5:00PM	Mon-Fri	MEETING ROOMS	2,305
EDO	7:00AM - 5:00PM	Mon-Fri	OPEN OFFCIE SPACE	2,473
EDP	7:00AM - 5:00PM	Mon-Fri	PRIVATE OFFICES	2,052
EDR	7:00AM - 5:00PM	Mon-Fri	RESTROOMS	2,222
EDS	7:00AM - 5:00PM	Mon-Fri	STORAGE ROOMS	1,488
OHCR	7:00AM - 5:00PM	Mon-Fri	CLASSROOMS	1,562
OHGYM	7:00AM - 5:00PM	Mon-Fri	GYM	2,636
OHH	7:00AM - 5:00PM	Mon-Fri	HALLS	7,114
OHM	7:00AM - 5:00PM	Mon-Fri	MEETING ROOMS	2,474
OHO	7:00AM - 5:00PM	Mon-Fri	OPEN OFFCIE SPACE	3,018
OHP	7:00AM - 5:00PM	Mon-Fri	PRIVATE OFFICES	1,916
OHR	7:00AM - 5:00PM	Mon-Fri	RESTROOMS	2,951
OHS	7:00AM - 5:00PM	Mon-Fri	STORAGE ROOMS	4,294
PH	7:00AM - 5:00PM	Mon-Fri	HALLS	8,609
PM	7:00AM - 5:00PM	Mon-Fri	MEETING ROOMS	6,881
PO	7:00AM - 5:00PM	Mon-Fri	OPEN OFFCIE SPACE	5,148
PP	8:30AM - 5:00PM	Mon-Fri	PRIVATE OFFICES	2,957
PR	8:30AM - 5:00PM	Mon-Fri	RESTROOMS	4,569
PS	8:30AM - 5:00PM	Mon-Fri	STORAGE ROOMS	6,577
X	8:30AM - 5:00PM	Mon-Fri	EXTERIOR	8,760

Lighting Occupancy Sensor Savings

City of Newton
Lighting Occupancy Sensor Savings Calculations

ID	Bldg Name	Print #	Area Description	Pre Fixture Qty	Pre Watts/ Fixt	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts/ Fixt	Sensor Y or N	Sensor Type(s)	Pre Hours	Post Hours	KWH Saved/Yr
2	4 - EDUCATION CENTER	302	OFFICE	4	58	A	4	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	WALL	2,052	1,477	104
3	4 - EDUCATION CENTER	301	COMPUTER LAB	3	112	A	3	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	CEILING	2,113	1,463	164
4	4 - EDUCATION CENTER	301	COMPUTER LAB	3	112	A	3	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y		2,113	1,463	164
6	4 - EDUCATION CENTER	304	OFFICE	3	112	A	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	Y	WALL	2,052	1,477	112
7	4 - EDUCATION CENTER	304	OFFICE	2	38	A	2	Relamp & Reballast w/ (1) F25T8 Lamps & (1) 1/25 Elec. Low-Power High Efficiency Ballast	21	Y		2,052	1,477	24
20	4 - EDUCATION CENTER	310	OFFICE	4	58	A	4	Relamp & Reballast w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast, 2x Tandem Wire	84	Y	WALL	2,052	1,477	193
21	4 - EDUCATION CENTER	310	OFFICE	2		A	2	No Retrofit Proposed		Y		2,052	1,477	
22	4 - EDUCATION CENTER	312	OFFICE	2	112	A	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	2,052	1,477	97
23	4 - EDUCATION CENTER	312	OFFICE	2	112	A	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y		2,052	1,477	97
24	4 - EDUCATION CENTER	312	OFFICE	3	15	A	3	No Retrofit Proposed	15	Y	WALL	2,052	1,477	26
25	4 - EDUCATION CENTER	312	OFFICE	2	52	A	2	No Retrofit Proposed	52	Y		2,052	1,477	60
26	4 - EDUCATION CENTER	312A	OFFICE	6	58	A	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,052	1,477	145
29	4 - EDUCATION CENTER	309	OFFICE	1	58	A	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,052	1,477	24
30	4 - EDUCATION CENTER	309	OFFICE	1	73	A	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y		2,052	1,477	24
31	4 - EDUCATION CENTER	307B	MENS RESTROOM	2	58	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	2,222	1,226	84
32	4 - EDUCATION CENTER	307B	MENS RESTROOM	1	112	A	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y		2,222	1,226	84
34	4 - EDUCATION CENTER	314	OFFICE	4	112	A	4	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	2,052	1,477	193
41	4 - EDUCATION CENTER	313A	WOMENS RESTROOM	4	58	A	4	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	CEILING	2,222	1,226	179
44	4 - EDUCATION CENTER	315A	OFFICE	3	112	A	3	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	2,052	1,477	145
50	4 - EDUCATION CENTER	317	OFFICE	3	112	A	3	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	2,052	1,477	145
52	4 - EDUCATION CENTER	315E	STORAGE	2	86	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,488	773	60
55	4 - EDUCATION CENTER	320A	OFFICE	1	112	A	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	2,052	1,477	48
56	4 - EDUCATION CENTER	320B	OFFICE	2	58	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,052	1,477	48
57	4 - EDUCATION CENTER	320B	OFFICE	1	112	A	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	2,052	1,477	48
58	4 - EDUCATION CENTER	320C	OFFICE	2	58	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,052	1,477	48
62	4 - EDUCATION CENTER	200	OFFICE	5	58	A	5	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	WALL	2,052	1,477	129
63	4 - EDUCATION CENTER	200A	OFFICE	1	73	A	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,052	1,477	24

City of Newton
Lighting Occupancy Sensor Savings Calculations

ID	Bldg Name	Print #	Area Description	Pre Fixture Qty	Pre Watts/ Fixt	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts/ Fixt	Sensor Y or N	Sensor Type(s)	Pre Hours	Post Hours	KWH Saved/Yr
64	4 - EDUCATION CENTER	200A	OFFICE	2	146	A	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y		2,052	1,477	97
65	4 - EDUCATION CENTER	200C	OFFICE	4	58	A	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,052	1,477	97
66	4 - EDUCATION CENTER	200C	OFFICE	3	52	A	3	No Retrofit Proposed	52	Y		2,052	1,477	90
67	4 - EDUCATION CENTER	202	OFFICE	3	58	A	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,052	1,477	73
68	4 - EDUCATION CENTER	202	OFFICE	3	52	A	3	No Retrofit Proposed	52	Y		2,052	1,477	90
70	4 - EDUCATION CENTER	203	OFFICE	3	58	A	3	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	WALL	2,052	1,477	78
71	4 - EDUCATION CENTER	203	OFFICE	1	52	A	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	Y		2,052	1,477	7
78	4 - EDUCATION CENTER	205	OFFICE	4	58	A	4	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	WALL	2,052	1,477	104
97	4 - EDUCATION CENTER	211A	MENS RESTROOM	1	58	A	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	2,222	1,226	42
98	4 - EDUCATION CENTER	211A	MENS RESTROOM	1	112	A	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y		2,222	1,226	84
118	4 - EDUCATION CENTER	214A	OFFICE	2	146	A	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	2,052	1,477	97
119	4 - EDUCATION CENTER	214A	OFFICE	2	73	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y		2,052	1,477	48
121	4 - EDUCATION CENTER	215D	WOMENS RESTROOM	3	58	A	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,222	1,226	126
122	4 - EDUCATION CENTER	215C	JANITOR CLOSET	1	73	A	1	No Retrofit Proposed	73	Y	WALL	1,488	773	52
123	4 - EDUCATION CENTER	216	CUSTODIAL CLOSET	2	58	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,488	773	60
124	4 - EDUCATION CENTER	215	OFFICES	3	112	A	3	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	2,052	1,477	145
125	4 - EDUCATION CENTER	215A	OFFICE	1	112	A	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	2,052	1,477	48
126	4 - EDUCATION CENTER	215B	OFFICE	4	58	A	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,052	1,477	97
130	4 - EDUCATION CENTER	218C	OFFICE	1	58	A	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,052	1,477	24
131	4 - EDUCATION CENTER	218C	OFFICE	1	112	A	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y		2,052	1,477	48
132	4 - EDUCATION CENTER	218B	OFFICE	2	112	A	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	2,052	1,477	97
133	4 - EDUCATION CENTER	218B	OFFICE	2	58	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y		2,052	1,477	48
134	4 - EDUCATION CENTER	218A	OFFICE	2	112	A	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	2,052	1,477	97
135	4 - EDUCATION CENTER	219	OFFICES	5	112	A	5	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	2,052	1,477	242
136	4 - EDUCATION CENTER	219A	OFFICE	3	58	A	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,052	1,477	73
143	4 - EDUCATION CENTER	124	CLASSROOM	9	58	A	9	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	2,113	1,463	246
144	4 - EDUCATION CENTER	129	CLASSROOM	9	58	A	9	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	2,113	1,463	246
145	4 - EDUCATION CENTER	127	CLASSROOM	4	58	A	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,113	1,463	109

City of Newton
Lighting Occupancy Sensor Savings Calculations

ID	Bldg Name	Print #	Area Description	Pre Fixture Qty	Pre Watts/ Fixt	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts/ Fixt	Sensor Y or N	Sensor Type(s)	Pre Hours	Post Hours	KWH Saved/Yr
146	4 - EDUCATION CENTER	122	OFFICES	3	58	A	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,052	1,477	73
148	4 - EDUCATION CENTER	121A	KITCHEN/BREAK	5	60	A	5	No Retrofit Proposed	60	Y	WALL	2,305	2,039	80
153	4 - EDUCATION CENTER	120	CLASSROOM	6	58	A	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	2,113	1,463	164
154	4 - EDUCATION CENTER	120	CLASSROOM	2	73	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y		2,113	1,463	55
155	4 - EDUCATION CENTER	117	OFFICE	2	58	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,052	1,477	48
156	4 - EDUCATION CENTER	117A	STORAGE ROOM	1	58	A	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,488	773	30
157	4 - EDUCATION CENTER	117B	NURSES OFFICE	2	112	A	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	2,052	1,477	97
159	4 - EDUCATION CENTER	118	MAIL ROOM	2	58	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,052	1,477	48
161	4 - EDUCATION CENTER	116	CLASSROOM	6	112	A	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	CEILING	2,113	1,463	328
168	4 - EDUCATION CENTER	113/114	CLASSROOM	8	58	A	8	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	2,113	1,463	218
170	4 - EDUCATION CENTER	113A	SMALL CLASS	2	58	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,113	1,463	55
171	4 - EDUCATION CENTER	113B	SMALL CLASS	2	58	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,113	1,463	55
172	4 - EDUCATION CENTER	112	SPECIAL NEEDS GYM	6	112	A	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	CEILING	2,784	1,517	638
182	4 - EDUCATION CENTER	111	TELEPHONE ROOM	3	86	A	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,488	773	90
193	4 - EDUCATION CENTER	C14	IT STORAGE	5	58	A	5	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,488	773	150
195	4 - EDUCATION CENTER	101	SERVER ROOM	7	58	A	7	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	1,488	773	210
196	4 - EDUCATION CENTER	101	SERVER ROOM	1	58	C	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y		1,488	773	30
199	4 - EDUCATION CENTER	100	OFFICE	4	58	A	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,052	1,477	97
201	4 - EDUCATION CENTER	104	STORAGE	2	112	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	Y	WALL	1,488	773	93
202	4 - EDUCATION CENTER	104	STORAGE	1	32	A	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	Y		1,488	773	34
214	4 - EDUCATION CENTER	108A	OFFICE	2	73	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,052	1,477	48
215	4 - EDUCATION CENTER	108A	OFFICE	2	88	A	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y		2,052	1,477	73
218	4 - EDUCATION CENTER	110	OFFICE	3	58	A	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,052	1,477	73
219	4 - EDUCATION CENTER	110B	OFFICE	4	58	A	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,052	1,477	97
220	4 - EDUCATION CENTER	110A	CONFERENCE ROOM	2	58	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,305	2,039	22
221	4 - EDUCATION CENTER	107	CLASSROOM	4	58	A	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	2,113	1,463	109
222	4 - EDUCATION CENTER	107	CLASSROOM	6	58	A	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y		2,113	1,463	164

City of Newton
Lighting Occupancy Sensor Savings Calculations

ID	Bldg Name	Print #	Area Description	Pre Fixture Qty	Pre Watts/ Fixt	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts/ Fixt	Sensor Y or N	Sensor Type(s)	Pre Hours	Post Hours	KWH Saved/Yr
226	4 - EDUCATION CENTER	M1A	CLASSROOM	6	146	A	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	CEILING	2,113	1,463	328
227	4 - EDUCATION CENTER	M1A	CLASSROOM	3	73	A	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y		2,113	1,463	82
228	4 - EDUCATION CENTER	M1B	CLASSROOM	6	146	A	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	CEILING	2,113	1,463	328
229	4 - EDUCATION CENTER	M1B	CLASSROOM	3	73	A	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y		2,113	1,463	82
230	4 - EDUCATION CENTER	M1C	CLASSROOM	6	146	A	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	CEILING	2,113	1,463	328
231	4 - EDUCATION CENTER	M1C	CLASSROOM	3	73	A	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y		2,113	1,463	82
232	4 - EDUCATION CENTER	M1E	SMALL PLAY AREA	1	73	A	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	2,113	1,463	27
233	4 - EDUCATION CENTER	M1E	SMALL PLAY AREA	1	146	A	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y		2,113	1,463	55
235	4 - EDUCATION CENTER	M1F	restroom/classroom	1	73	A	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,222	1,226	42
236	4 - EDUCATION CENTER	M1D	RESTROOM	1	146	A	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	2,222	1,226	84
244	4 - EDUCATION CENTER	M2E	RESTROOM	1	146	A	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	2,222	1,226	84
245	4 - EDUCATION CENTER	M2F	STORAGE	1	73	A	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,488	773	30
246	4 - EDUCATION CENTER	M2F	STORAGE	1	146	A	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y		1,488	773	60
266	3 - OAK HILL MIDDLE SCHOOL	137	principals office	2	88	B	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	1,916	1,287	79
267	3 - OAK HILL MIDDLE SCHOOL	132	copy room	1	88	B	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	3,018	1,733	81
268	3 - OAK HILL MIDDLE SCHOOL	137a	office	2	88	B	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	1,916	1,287	79
269	3 - OAK HILL MIDDLE SCHOOL	137b	lobby area	5	88	B	5	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	7,114	2,266	1,527
271	3 - OAK HILL MIDDLE SCHOOL	134	office	2	88	B	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	1,916	1,287	79
272	3 - OAK HILL MIDDLE SCHOOL	138	office	2	88	B	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	1,916	1,287	79
273	3 - OAK HILL MIDDLE SCHOOL	140	copy room	1	88	B	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	3,018	1,733	81
274	3 - OAK HILL MIDDLE SCHOOL	135	womens restroom	2	58	B	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	3,951	1,721	187
275	3 - OAK HILL MIDDLE SCHOOL	128	nurses office	2	88	B	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	3,018	1,733	162
276	3 - OAK HILL MIDDLE SCHOOL	129	rest/exam room	1	88	B	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	3,951	1,721	141
277	3 - OAK HILL MIDDLE SCHOOL	130	rest/exam room	1	88	B	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	3,951	1,721	141
278	3 - OAK HILL MIDDLE SCHOOL	131	restroom	1	34	B	1	No Retrofit Proposed	34	Y	WALL	3,951	1,721	76
279	3 - OAK HILL MIDDLE SCHOOL	127	janitors office	6	58	B	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,916	1,287	158
280	3 - OAK HILL MIDDLE SCHOOL	127b	storage	1	58	B	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	4,294	1,074	135
282	3 - OAK HILL MIDDLE SCHOOL	126	classroom	9	88	B	9	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	164

City of Newton
Lighting Occupancy Sensor Savings Calculations

ID	Bldg Name	Print #	Area Description	Pre Fixture Qty	Pre Watts/ Fixt	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts/ Fixt	Sensor Y or N	Sensor Type(s)	Pre Hours	Post Hours	KWH Saved/Yr
283	3 - OAK HILL MIDDLE SCHOOL	126a	work room	1	88	B	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	3,018	1,733	81
284	3 - OAK HILL MIDDLE SCHOOL	125a	work room	1	88	B	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	3,018	1,733	81
285	3 - OAK HILL MIDDLE SCHOOL	125	classroom	9	88	B	9	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	164
286	3 - OAK HILL MIDDLE SCHOOL	124	classroom	9	88	B	9	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	164
287	3 - OAK HILL MIDDLE SCHOOL	123	science classroom	10	88	B	10	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	182
288	3 - OAK HILL MIDDLE SCHOOL	123a	science storage	1	88	B	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	4,294	1,074	203
289	3 - OAK HILL MIDDLE SCHOOL	122	classroom	10	88	B	10	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	182
290	3 - OAK HILL MIDDLE SCHOOL	122a	science storage	1	88	B	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	4,294	1,074	203
291	3 - OAK HILL MIDDLE SCHOOL	121	classroom	9	88	B	9	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	164
292	3 - OAK HILL MIDDLE SCHOOL	120	classroom	9	88	B	9	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	164
293	3 - OAK HILL MIDDLE SCHOOL	120a	work room	1	88	B	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	3,018	1,733	81
294	3 - OAK HILL MIDDLE SCHOOL	119a	work room	1	88	B	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	3,018	1,733	81
295	3 - OAK HILL MIDDLE SCHOOL	115	cafeteria	25	88	B	25	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	3,018	1,733	2,025
296	3 - OAK HILL MIDDLE SCHOOL	115	cafeteria	4	30	B	4	No Retrofit Proposed	30	Y		3,018	1,733	154
297	3 - OAK HILL MIDDLE SCHOOL	115	cafeteria	20	135	B	20	No Retrofit Proposed	135	Y		3,018	1,733	3,471
299	3 - OAK HILL MIDDLE SCHOOL	115	kitchen corridor	2	58	B	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	CEILING	7,114	2,266	436
300	3 - OAK HILL MIDDLE SCHOOL	118	teachers lounge	5	88	B	5	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	2,474	1,237	390
301	3 - OAK HILL MIDDLE SCHOOL	118	teachers lounge	1	88	C	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y		2,474	1,237	78
302	3 - OAK HILL MIDDLE SCHOOL	110	gymnasium	24	295	B	24	New Big Gym Fixture w/ (3) F54T5HO Lamps & (2) 2/54 T5 Elec. HO Ballasts, High Bay	185	Y	CEILING	2,636	2,048	2,614
304	3 - OAK HILL MIDDLE SCHOOL	115A	KITCHEN	10	88	B	10	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	3,018	1,733	810
307	3 - OAK HILL MIDDLE SCHOOL	115C	STORAGE/OFFICE	2	58	B	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	4,294	1,074	271
308	3 - OAK HILL MIDDLE SCHOOL	118	TEACHERS DINING	6	88	B	6	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	3,018	1,733	486
309	3 - OAK HILL MIDDLE SCHOOL	110A	GYM STORAGE	4	58	B	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	4,294	1,074	541
310	3 - OAK HILL MIDDLE SCHOOL	C1	CORRIDOR	16	58	B	16	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	7,114	2,266	3,257
312	3 - OAK HILL MIDDLE SCHOOL	C1	CORRIDOR	14	30	B	14	No Retrofit Proposed	30	Y	CEILING	7,114	2,266	2,036
313	3 - OAK HILL MIDDLE SCHOOL	136	MENS RESTROOM	2	58	B	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	3,951	1,721	187
314	3 - OAK HILL MIDDLE SCHOOL	101	GIRLS RESTROOM	2	58	B	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	3,951	1,721	187
315	3 - OAK HILL MIDDLE SCHOOL	102	BOYS RESTROOM	2	58	B	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	3,951	1,721	187

City of Newton
Lighting Occupancy Sensor Savings Calculations

ID	Bldg Name	Print #	Area Description	Pre Fixture Qty	Pre Watts/ Fixt	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts/ Fixt	Sensor Y or N	Sensor Type(s)	Pre Hours	Post Hours	KWH Saved/Yr
316	3 - OAK HILL MIDDLE SCHOOL	103	CUSTODIAL OFFICE	1	58	B	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,916	1,287	26
317	3 - OAK HILL MIDDLE SCHOOL	103A	CUSTODIAL CLOSET	1	30	B	1	No Retrofit Proposed	30	Y	WALL	4,294	1,074	97
319	3 - OAK HILL MIDDLE SCHOOL	C2	CORRIDOR	6	58	B	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	7,114	2,266	1,222
320	3 - OAK HILL MIDDLE SCHOOL	C2	CORRIDOR	7	30	B	7	No Retrofit Proposed	30	Y		7,114	2,266	1,018
321	3 - OAK HILL MIDDLE SCHOOL	106	CLASSROOM	8	88	B	8	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	145
322	3 - OAK HILL MIDDLE SCHOOL	108	CLASSROOM	12	88	B	12	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	218
323	3 - OAK HILL MIDDLE SCHOOL	107	CLASSROOM	8	88	B	8	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	145
324	3 - OAK HILL MIDDLE SCHOOL	109	SHOP CLASSROOM	16	88	B	16	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	291
325	3 - OAK HILL MIDDLE SCHOOL	109A	SHOP CLASSROOM	4	88	B	4	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	73
329	3 - OAK HILL MIDDLE SCHOOL	111	PE OFFICE	2	88	B	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	1,916	1,287	79
331	3 - OAK HILL MIDDLE SCHOOL	112	LOCKERS	7	88	B	7	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	3,951	1,721	984
334	3 - OAK HILL MIDDLE SCHOOL	C4	ENTRY CORRIDOR	7	58	B	7	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	CEILING	7,114	2,266	1,527
335	3 - OAK HILL MIDDLE SCHOOL	C4	ENTRY CORRIDOR	3	58	C	3	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y		7,114	2,266	654
339	3 - OAK HILL MIDDLE SCHOOL	C5	ENTRY VESTIBULE	6	58	B	6	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	CEILING	7,114	2,266	1,309
340	3 - OAK HILL MIDDLE SCHOOL	C6	ELEVATOR VESTIBULE	2	34	B	2	No Retrofit Proposed	34	Y	CEILING	7,114	2,266	330
341	3 - OAK HILL MIDDLE SCHOOL	C6	CORRIDOR	8	58	B	8	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	7,114	2,266	1,629
342	3 - OAK HILL MIDDLE SCHOOL	C6	CORRIDOR	5	58	C	5	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y		7,114	2,266	1,018
344	3 - OAK HILL MIDDLE SCHOOL	141	GIRLS RESTROOM	2	58	B	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	3,951	1,721	187
345	3 - OAK HILL MIDDLE SCHOOL	142	CLASSROOM	8	88	B	8	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	145
346	3 - OAK HILL MIDDLE SCHOOL	143	CLASSROOM	8	88	B	8	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	145
347	3 - OAK HILL MIDDLE SCHOOL	146	CUSTODIAN STORAGE	1	58	B	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	4,294	1,074	135
348	3 - OAK HILL MIDDLE SCHOOL	146A	STORAGE CLOSET	1	58	B	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	4,294	1,074	135
349	3 - OAK HILL MIDDLE SCHOOL	144	BOYS RESTROOM	2	58	B	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	3,951	1,721	187
351	3 - OAK HILL MIDDLE SCHOOL	147	OFFICE	2	88	B	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	1,916	1,287	79
355	3 - OAK HILL MIDDLE SCHOOL	149	STORAGE	2	88	B	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	4,294	1,074	406
356	3 - OAK HILL MIDDLE SCHOOL	148	ART CLASS	12	88	B	12	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	218
357	3 - OAK HILL MIDDLE SCHOOL	151	OFFICE	2	88	B	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	3,018	1,733	162
358	3 - OAK HILL MIDDLE SCHOOL	152	CLASSROOM	8	88	B	8	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	145

City of Newton
Lighting Occupancy Sensor Savings Calculations

ID	Bldg Name	Print #	Area Description	Pre Fixture Qty	Pre Watts/ Fixt	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts/ Fixt	Sensor Y or N	Sensor Type(s)	Pre Hours	Post Hours	KWH Saved/Yr
359	3 - OAK HILL MIDDLE SCHOOL	105	CLASSROOM	8	88	B	8	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	145
365	3 - OAK HILL MIDDLE SCHOOL	C8	CORRIDOR	9	58	B	9	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	7,114	2,266	1,832
366	3 - OAK HILL MIDDLE SCHOOL	C8	CORRIDOR	8	58	C	8	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y		7,114	2,266	1,629
367	3 - OAK HILL MIDDLE SCHOOL	C8	CORRIDOR	14	40	C	14	No Retrofit Proposed	40	Y		7,114	2,266	2,715
368	3 - OAK HILL MIDDLE SCHOOL	239	WOMENS RESTROOM	2	58	B	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	3,951	1,721	187
369	3 - OAK HILL MIDDLE SCHOOL	237	COMPUTER ROOM	8	88	B	8	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	3,018	1,733	648
370	3 - OAK HILL MIDDLE SCHOOL	235	CLASSROOM	7	88	B	7	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	127
371	3 - OAK HILL MIDDLE SCHOOL	235	CLASSROOM	1	34	B	1	No Retrofit Proposed	34	Y		1,562	1,273	10
372	3 - OAK HILL MIDDLE SCHOOL	235A	OFFICE	1	88	B	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	3,018	1,733	81
373	3 - OAK HILL MIDDLE SCHOOL	228A	CONFERENCE ROOM	1	88	B	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	2,474	1,237	78
374	3 - OAK HILL MIDDLE SCHOOL	229A	WORK ROOM	1	88	B	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	3,018	1,733	81
375	3 - OAK HILL MIDDLE SCHOOL	234A	OFFICE	1	88	B	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	1,916	1,287	40
376	3 - OAK HILL MIDDLE SCHOOL	C9	CORRIDOR	4	58	B	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	7,114	2,266	814
377	3 - OAK HILL MIDDLE SCHOOL	C9	CORRIDOR	2	58	C	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y		7,114	2,266	407
378	3 - OAK HILL MIDDLE SCHOOL	C9	CORRIDOR	9	30	B	9	No Retrofit Proposed	30	Y		7,114	2,266	1,309
380	3 - OAK HILL MIDDLE SCHOOL	217	OFFICE	2	88	B	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	1,916	1,287	79
381	3 - OAK HILL MIDDLE SCHOOL	216	CLASSROOM	6	88	B	6	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	109
397	3 - OAK HILL MIDDLE SCHOOL	222	LIBRARY	24	88	B	24	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	3,018	1,733	1,944
398	3 - OAK HILL MIDDLE SCHOOL	222	LIBRARY	6	88	C	6	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y		3,018	1,733	486
399	3 - OAK HILL MIDDLE SCHOOL	222	LIBRARY	8	30	B	8	No Retrofit Proposed	30	Y		3,018	1,733	309
400	3 - OAK HILL MIDDLE SCHOOL	223	WORK ROOM	2	88	B	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	3,018	1,733	162
401	3 - OAK HILL MIDDLE SCHOOL	224	OFFICE	2	88	B	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	1,916	1,287	79
402	3 - OAK HILL MIDDLE SCHOOL	225	WORK ROOM	2	88	B	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	3,018	1,733	162
404	3 - OAK HILL MIDDLE SCHOOL	150A	STORAGE	2	88	B	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	4,294	1,074	406
405	3 - OAK HILL MIDDLE SCHOOL	240	MENS RESTROOM	2	58	B	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	3,951	1,721	187
407	3 - OAK HILL MIDDLE SCHOOL	236	COMPUTER ROOM	8	88	B	8	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	3,018	1,733	648
408	3 - OAK HILL MIDDLE SCHOOL	234	CLASSROOM	9	88	B	9	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	164
409	3 - OAK HILL MIDDLE SCHOOL	233	CLASSROOM	9	88	B	9	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	164

City of Newton
Lighting Occupancy Sensor Savings Calculations

ID	Bldg Name	Print #	Area Description	Pre Fixture Qty	Pre Watts/ Fixt	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts/ Fixt	Sensor Y or N	Sensor Type(s)	Pre Hours	Post Hours	KWH Saved/Yr
410	3 - OAK HILL MIDDLE SCHOOL	232	CLASSROOM	10	88	B	10	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	182
411	3 - OAK HILL MIDDLE SCHOOL	232A	STORAGE	1	88	B	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	4,294	1,074	203
412	3 - OAK HILL MIDDLE SCHOOL	231	CLASSROOM	10	88	B	10	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	182
413	3 - OAK HILL MIDDLE SCHOOL	231A	STORAGE	1	88	B	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	4,294	1,074	203
414	3 - OAK HILL MIDDLE SCHOOL	230	CLASSROOM	9	88	B	9	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	164
415	3 - OAK HILL MIDDLE SCHOOL	229	CLASSROOM	9	88	B	9	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	164
416	3 - OAK HILL MIDDLE SCHOOL	228	CLASSROOM	7	88	B	7	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	127
417	3 - OAK HILL MIDDLE SCHOOL	228	CLASSROOM	1	34	B	1	No Retrofit Proposed	34	Y		1,562	1,273	10
420	3 - OAK HILL MIDDLE SCHOOL	202	GIRLS RESTROOM	2	58	B	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	3,951	1,721	187
421	3 - OAK HILL MIDDLE SCHOOL	203	BOYS RESTROOM	2	58	B	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	3,951	1,721	187
422	3 - OAK HILL MIDDLE SCHOOL	204	STORAGE	1	58	B	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	4,294	1,074	135
423	3 - OAK HILL MIDDLE SCHOOL	205	CUSTODIAL CLOSET	1	58	B	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	4,294	1,074	135
424	3 - OAK HILL MIDDLE SCHOOL	206-207	CLASSROOM	16	88	B	16	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	291
425	3 - OAK HILL MIDDLE SCHOOL	208	CLASSROOM	7	88	B	7	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	127
426	3 - OAK HILL MIDDLE SCHOOL	214	OPEN OFFICE/CORRIDOR	2	88	B	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	3,018	1,733	162
427	3 - OAK HILL MIDDLE SCHOOL	214	OPEN OFFICE/CORRIDOR	2	34	B	2	No Retrofit Proposed	34	Y		3,018	1,733	87
428	3 - OAK HILL MIDDLE SCHOOL	214	OPEN OFFICE/CORRIDOR	1	88	C	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y		3,018	1,733	81
429	3 - OAK HILL MIDDLE SCHOOL	214	OPEN OFFICE/CORRIDOR	1	34	C	1	No Retrofit Proposed	34	Y		3,018	1,733	44
430	3 - OAK HILL MIDDLE SCHOOL	210	OFFICE	1	88	B	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	1,916	1,287	40
431	3 - OAK HILL MIDDLE SCHOOL	213	OFFICE	2	88	B	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	1,916	1,287	79
432	3 - OAK HILL MIDDLE SCHOOL	212	OFFICE	2	88	B	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	1,916	1,287	79
433	3 - OAK HILL MIDDLE SCHOOL	211	OFFICE	2	88	B	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	1,916	1,287	79
434	3 - OAK HILL MIDDLE SCHOOL	209	CONFERENCE ROOM	4	88	B	4	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	2,474	1,237	312
435	3 - OAK HILL MIDDLE SCHOOL	215	CLASSROOM	8	88	B	8	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	145
437	3 - OAK HILL MIDDLE SCHOOL	200	TEACHERS LOUNGE	6	88	B	6	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	2,474	1,237	468
438	3 - OAK HILL MIDDLE SCHOOL	201	STORAGE	1	58	B	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	4,294	1,074	135
440	3 - OAK HILL MIDDLE SCHOOL	C10	CORRIDOR	12	58	B	12	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	7,114	2,266	2,443
441	3 - OAK HILL MIDDLE SCHOOL	C10	CORRIDOR	2	30	C	2			Y		7,114	2,266	

City of Newton
Lighting Occupancy Sensor Savings Calculations

ID	Bldg Name	Print #	Area Description	Pre Fixture Qty	Pre Watts/ Fixt	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts/ Fixt	Sensor Y or N	Sensor Type(s)	Pre Hours	Post Hours	KWH Saved/Yr
442	3 - OAK HILL MIDDLE SCHOOL	C10	CORRIDOR	1	34	C	1	No Retrofit Proposed	34	Y		7,114	2,266	165
443	3 - OAK HILL MIDDLE SCHOOL	247	CUSTODIAL CLOSET	1	58	B	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	4,294	1,074	135
444	3 - OAK HILL MIDDLE SCHOOL	246	STORAGE	1	58	B	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	4,294	1,074	135
445	3 - OAK HILL MIDDLE SCHOOL	244A	BOYS RESTROOM	2	58	B	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	3,951	1,721	187
448	3 - OAK HILL MIDDLE SCHOOL	8	OFFICE	2	88	B	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	1,916	1,287	79
449	3 - OAK HILL MIDDLE SCHOOL	7	MUSIC ROOM	12	88	B	12	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	218
451	3 - OAK HILL MIDDLE SCHOOL	6	MUSIC STORAGE/OFFICE	2	88	B	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	4,294	1,074	406
452	3 - OAK HILL MIDDLE SCHOOL	5	OFFICE	2	88	B	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	1,916	1,287	79
453	3 - OAK HILL MIDDLE SCHOOL	5A	BOYS RESTROOM	2	58	B	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	3,951	1,721	187
455	3 - OAK HILL MIDDLE SCHOOL	10	CLASSROOM	8	88	B	8	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	145
456	3 - OAK HILL MIDDLE SCHOOL	11A	CLASSROOM	5	88	B	5	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	91
457	3 - OAK HILL MIDDLE SCHOOL	11B	CLASSROOM	5	88	B	5	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	91
458	3 - OAK HILL MIDDLE SCHOOL	12	CUSTODIAL STORAGE	2	58	B	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	4,294	1,074	271
460	3 - OAK HILL MIDDLE SCHOOL	5B	GIRLS RESTROOM	2	58	B	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	3,951	1,721	187
462	3 - OAK HILL MIDDLE SCHOOL	2A	TELEPHONE ROOM	2	58	B	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	4,294	1,074	271
465	3 - OAK HILL MIDDLE SCHOOL	C11	CORRIDOR	8	58	B	8	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	7,114	2,266	1,629
466	3 - OAK HILL MIDDLE SCHOOL	C11	CORRIDOR	7	58	C	7	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y		7,114	2,266	1,425
472	3 - OAK HILL MIDDLE SCHOOL	242	GIRLS RESTROOM	2	58	B	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	3,951	1,721	187
473	3 - OAK HILL MIDDLE SCHOOL	243	CLASSROOM	8	88	B	8	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	145
474	3 - OAK HILL MIDDLE SCHOOL	244	CLASSROOM	8	88	B	8	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	145
475	3 - OAK HILL MIDDLE SCHOOL	249	CLASSROOM	8	88	B	8	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	145
477	3 - OAK HILL MIDDLE SCHOOL	250	OFFICE	2	88	B	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	1,916	1,287	79
478	3 - OAK HILL MIDDLE SCHOOL	251	CLASSROOM	8	88	B	8	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,562	1,273	145
489	2 - BROWN MIDDLE SCHOOL	w213	womens restroom	1	34	E	1	No Retrofit Proposed	34	Y	WALL	2,586	1,254	45
490	2 - BROWN MIDDLE SCHOOL	m213	mens restroom	1	34	E	1	No Retrofit Proposed	34	Y	WALL	2,586	1,254	45
495	2 - BROWN MIDDLE SCHOOL	b214	boys restroom	3	34	E	3	No Retrofit Proposed	34	Y	CEILING	2,586	1,254	136
496	2 - BROWN MIDDLE SCHOOL	h2	hall 2	16	34	E	16	No Retrofit Proposed	34	Y	CEILING	6,241	1,523	2,567
501	2 - BROWN MIDDLE SCHOOL	g214	girls restroom	3	34	E	3	No Retrofit Proposed	34	Y	CEILING	2,586	1,254	136

City of Newton
Lighting Occupancy Sensor Savings Calculations

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519	2 - BROWN MIDDLE SCHOOL	h4	hall 4	10	58	E	10	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	6,241	1,523	1,982
524	2 - BROWN MIDDLE SCHOOL	230	classroom closet	1	58	E	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,488	773	30
525	2 - BROWN MIDDLE SCHOOL	jc230	janitors closet	1	58	E	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,488	773	30
526	2 - BROWN MIDDLE SCHOOL	m230	mens restroom	2	58	E	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	2,586	1,254	112
527	2 - BROWN MIDDLE SCHOOL	w230	womens restroom	2	58	E	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	2,586	1,254	112
532	2 - BROWN MIDDLE SCHOOL	h5	hall 5	6	34	E	6	No Retrofit Proposed	34	Y	CEILING	6,241	1,523	962
534	2 - BROWN MIDDLE SCHOOL	211	lab	3	112	E	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	Y	CEILING	2,911	2,307	118
537	2 - BROWN MIDDLE SCHOOL	209	office	4	112	E	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	Y	CEILING	1,509	985	136
538	2 - BROWN MIDDLE SCHOOL	209	office	1	30	E	1	No Retrofit Proposed	30	Y		1,509	985	16
544	2 - BROWN MIDDLE SCHOOL	b207	boys restroom	2	34	E	2	No Retrofit Proposed	34	Y	CEILING	2,586	1,254	91
546	2 - BROWN MIDDLE SCHOOL	205	office	2	88	E	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	1,509	985	66
547	2 - BROWN MIDDLE SCHOOL	g207	girls restroom	3	34	E	3	No Retrofit Proposed	34	Y	CEILING	2,586	1,254	136
549	2 - BROWN MIDDLE SCHOOL	h7	hall 7	5	34	E	5	No Retrofit Proposed	34	Y	CEILING	6,241	1,523	802
552	2 - BROWN MIDDLE SCHOOL	h8	hall 8	10	34	E	10	No Retrofit Proposed	34	Y	CEILING	6,241	1,523	1,604
554	2 - BROWN MIDDLE SCHOOL	202a	storage	3	30	E	3	No Retrofit Proposed	30	Y	CEILING	1,488	773	64
555	2 - BROWN MIDDLE SCHOOL	202a	storage	2	112	E	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y		1,488	773	120
556	2 - BROWN MIDDLE SCHOOL	202b	storage	2	30	E	2	No Retrofit Proposed	30	Y	WALL	1,488	773	43
562	2 - BROWN MIDDLE SCHOOL	120	front lobby	8	58	E	8	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	CEILING	6,241	1,523	1,698
563	2 - BROWN MIDDLE SCHOOL	h9	hall 9	5	58	E	5	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	6,241	1,523	991
564	2 - BROWN MIDDLE SCHOOL	119g	hallway	4	34	E	4	No Retrofit Proposed	34	Y	CEILING	6,241	1,523	642
565	2 - BROWN MIDDLE SCHOOL	119e	office	1	112	E	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	Y	WALL	1,509	985	34
566	2 - BROWN MIDDLE SCHOOL	119d	conference room	2	112	E	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	Y	WALL	1,433	1,296	18
567	2 - BROWN MIDDLE SCHOOL	119c	office	2	112	E	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	Y	WALL	1,509	985	68
568	2 - BROWN MIDDLE SCHOOL	119b	office	1	112	E	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	Y	WALL	1,509	985	34
569	2 - BROWN MIDDLE SCHOOL	119f	office	1	112	E	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	1,509	985	44

City of Newton
Lighting Occupancy Sensor Savings Calculations

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570	2 - BROWN MIDDLE SCHOOL	119a	office	1	112	E	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	Y	WALL	1,509	985	34
571	2 - BROWN MIDDLE SCHOOL	119	office / lobby	4	112	E	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	Y	CEILING	2,911	2,307	157
575	2 - BROWN MIDDLE SCHOOL	b122	boys restroom	3	34	E	3	No Retrofit Proposed	34	Y	CEILING	2,586	1,254	136
577	2 - BROWN MIDDLE SCHOOL	g122	girls restroom	3	34	E	3	No Retrofit Proposed	34	Y	CEILING	2,586	1,254	136
578	2 - BROWN MIDDLE SCHOOL	h10	hall 10	17	34	E	17	No Retrofit Proposed	34	Y	CEILING	6,241	1,523	2,727
581	2 - BROWN MIDDLE SCHOOL	124	computer lab	6	112	E	6	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	CEILING	2,911	2,307	305
582	2 - BROWN MIDDLE SCHOOL	124	computer lab	2	58	E	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y		2,911	2,307	51
583	2 - BROWN MIDDLE SCHOOL	126	computer lab	4	112	E	4	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	CEILING	2,911	2,307	203
604	2 - BROWN MIDDLE SCHOOL	h14	hall 14	5	88	E	5	New 2'x4' Recessed Troffer w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	6,241	1,523	991
616	2 - BROWN MIDDLE SCHOOL	153a	office	6	88	E	6	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	2,911	2,307	228
617	2 - BROWN MIDDLE SCHOOL	153a	office	5	65	E	5	No Retrofit Proposed	65	Y		2,911	2,307	196
618	2 - BROWN MIDDLE SCHOOL	153b	book storage	4	88	E	4	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	1,488	773	180
631	2 - BROWN MIDDLE SCHOOL	158a	computers	2	88	E	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	2,911	2,307	76
632	2 - BROWN MIDDLE SCHOOL	158b	office	4	75	E	4	Relamp w/ (1) 15 watt Compact Fluorescent Dimmable Screw-In	15	Y	WALL	1,509	985	31
638	2 - BROWN MIDDLE SCHOOL	154	break room	2	112	E	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	1,433	1,296	23
646	2 - BROWN MIDDLE SCHOOL	b150	boys restroom	3	34	E	3	No Retrofit Proposed	34	Y	CEILING	2,586	1,254	136
647	2 - BROWN MIDDLE SCHOOL	g150	girls restroom	3	34	E	3	No Retrofit Proposed	34	Y	CEILING	2,586	1,254	136
650	2 - BROWN MIDDLE SCHOOL	w150	womens restroom	1	34	E	1	No Retrofit Proposed	34	Y	WALL	2,586	1,254	45
651	2 - BROWN MIDDLE SCHOOL	m150	mens restroom	1	34	E	1	No Retrofit Proposed	34	Y	WALL	2,586	1,254	45
652	2 - BROWN MIDDLE SCHOOL	h17	hall 17	7	34	E	7	No Retrofit Proposed	34	Y	CEILING	6,241	1,523	1,123
656	2 - BROWN MIDDLE SCHOOL	h18	hall 18	3	58	E	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 1/32 Elec. Low-Power HE Ballast, & (1) Battery Backup 1-Lamp HE Ballast	42	Y	CEILING	6,241	1,523	594
658	2 - BROWN MIDDLE SCHOOL	h19	hall 19	5	58	E	5	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	CEILING	6,241	1,523	1,062
661	2 - BROWN MIDDLE SCHOOL	144	work room	9	112	E	9	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	CEILING	2,911	2,307	457
663	2 - BROWN MIDDLE SCHOOL	142	shop	9	112	E	9	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	CEILING	2,911	2,307	457
664	2 - BROWN MIDDLE SCHOOL	138	home ec room	25	58	E	25	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	CEILING	2,911	2,307	680
665	2 - BROWN MIDDLE SCHOOL	138s1	storage	1	73	E	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,488	773	30

City of Newton
Lighting Occupancy Sensor Savings Calculations

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666	2 - BROWN MIDDLE SCHOOL	138s2	storage	1	73	E	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,488	773	30
667	2 - BROWN MIDDLE SCHOOL	138s2	storage	1	30	E	1	No Retrofit Proposed	30	Y		1,488	773	21
668	2 - BROWN MIDDLE SCHOOL	h20	hall 20	6	58	E	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	6,241	1,523	1,189
670	2 - BROWN MIDDLE SCHOOL	136a	office	2	58	E	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,509	985	44
671	2 - BROWN MIDDLE SCHOOL	136b	storage	2	58	E	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,488	773	60
679	2 - BROWN MIDDLE SCHOOL	305	storage	3	22	E	3	No Retrofit Proposed	22	Y	WALL	1,488	773	47
685	2 - BROWN MIDDLE SCHOOL	134	storage	6	52	E	6	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	Y	WALL	1,488	773	56
690	2 - BROWN MIDDLE SCHOOL	134h	storage	3	30	E	3	No Retrofit Proposed	30	Y	WALL	1,488	773	64
692	2 - BROWN MIDDLE SCHOOL	134c	mens restroom	3	58	E	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,586	1,254	168
693	2 - BROWN MIDDLE SCHOOL	134d	storage	2	30	E	2	No Retrofit Proposed	30	Y	WALL	1,488	773	43
696	2 - BROWN MIDDLE SCHOOL	134g	storage	2	34	E	2	No Retrofit Proposed	34	Y	WALL	1,488	773	49
697	2 - BROWN MIDDLE SCHOOL	118a	womens restroom	2	112	E	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power HE Ballast, Outboard Lamps Only	48	Y	WALL	2,586	1,254	128
698	2 - BROWN MIDDLE SCHOOL	h22	hall 22	4	58	E	4	New 2'x2' Air Handling Unit Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power HE Ballast, Parabolic Diffuser	45	Y	CEILING	6,241	1,523	849
700	2 - BROWN MIDDLE SCHOOL	h23	hall 23	6	58	E	6	New 2'x2' Air Handling Unit Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power HE Ballast, Parabolic Diffuser	45	Y	CEILING	6,241	1,523	1,274
702	2 - BROWN MIDDLE SCHOOL	116	office	2	112	E	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	1,509	985	88
704	2 - BROWN MIDDLE SCHOOL	116br	restroom	1	22	E	1	No Retrofit Proposed	22	Y	WALL	2,586	1,254	29
705	2 - BROWN MIDDLE SCHOOL	114	conference room	4	112	E	4	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	1,433	1,296	46
706	2 - BROWN MIDDLE SCHOOL	112	copy room	2	112	E	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	2,911	2,307	102
712	2 - BROWN MIDDLE SCHOOL	106d	office	1	112	E	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	1,509	985	44
713	2 - BROWN MIDDLE SCHOOL	106d	office restroom	1	32	E	1	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	Y	WALL	2,586	1,254	29
721	2 - BROWN MIDDLE SCHOOL	106	gym	24		E	24	No Retrofit Proposed		Y	CEILING	3,634	2,505	4,769
723	2 - BROWN MIDDLE SCHOOL	106i	weight room	3	32	E	3	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	Y	CEILING	3,634	2,505	75
724	2 - BROWN MIDDLE SCHOOL	106i	weight room	2	58	E	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y		3,634	2,505	95
731	2 - BROWN MIDDLE SCHOOL	108e	office	1	112	E	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	1,509	985	44
737	2 - BROWN MIDDLE SCHOOL	300	storage	3	30	E	3	No Retrofit Proposed	30	Y	WALL	1,488	773	64
738	2 - BROWN MIDDLE SCHOOL	300	storage	1	22	E	1	No Retrofit Proposed	22	Y		1,488	773	16
739	2 - BROWN MIDDLE SCHOOL	300a	break room	1	112	E	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	1,433	1,296	11

City of Newton
Lighting Occupancy Sensor Savings Calculations

ID	Bldg Name	Print #	Area Description	Pre Fixture Qty	Pre Watts/ Fixt	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts/ Fixt	Sensor Y or N	Sensor Type(s)	Pre Hours	Post Hours	KWH Saved/Yr
742	2 - BROWN MIDDLE SCHOOL	105c	office	1	58	E	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,509	985	22
745	2 - BROWN MIDDLE SCHOOL	105f	storage	2	32	E	2	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	Y	WALL	1,488	773	31
748	2 - BROWN MIDDLE SCHOOL	107	cafeteria	35	58	E	35	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	2,911	2,307	888
750	2 - BROWN MIDDLE SCHOOL	107a	cafeteria	12	58	E	12	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	2,911	2,307	305
757	2 - BROWN MIDDLE SCHOOL	109	break room	2	112	E	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	1,433	1,296	23
761	2 - BROWN MIDDLE SCHOOL	113a	office	1	112	E	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	1,509	985	44
764	2 - BROWN MIDDLE SCHOOL	115	office	1	112	E	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	1,509	985	44
765	2 - BROWN MIDDLE SCHOOL	116	nurses office	2	58	E	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,911	2,307	51
766	2 - BROWN MIDDLE SCHOOL	116a	restroom	1	30	E	1	No Retrofit Proposed	30	Y	WALL	2,586	1,254	40
768	2 - BROWN MIDDLE SCHOOL	116c	restroom	1	30	E	1	No Retrofit Proposed	30	Y	WALL	2,586	1,254	40
770	2 - BROWN MIDDLE SCHOOL	117	mail room	1	58	E	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,911	2,307	25
771	2 - BROWN MIDDLE SCHOOL	118	front office	9	58	E	9	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	2,911	2,307	228
773	2 - BROWN MIDDLE SCHOOL	118b	office	1	58	E	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,509	985	22
776	2 - BROWN MIDDLE SCHOOL	118e	office	2	58	E	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,509	985	44
784	2 - BROWN MIDDLE SCHOOL	146B	INDUSTRIAL PARTS	5	112	E	5	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	CEILING	2,911	2,307	254
785	2 - BROWN MIDDLE SCHOOL	150D	COPY ROOM	2	58	E	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,911	2,307	51
788	2 - BROWN MIDDLE SCHOOL	H29	HALL 29	9	58	E	9	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	6,241	1,523	1,783
796	2 - BROWN MIDDLE SCHOOL	155	Storage	3	58	E	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,488	773	90
797	2 - BROWN MIDDLE SCHOOL	155	Storage	1	58	E	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y		1,488	773	30
798	2 - BROWN MIDDLE SCHOOL	109A	Storage	2	58	E	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,488	773	60
799	2 - BROWN MIDDLE SCHOOL	114a		2	58	E	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,488	773	60
815	1 - BIGELOW MIDDLE SCHOOL	209	boys restroom	2	34	G	2	No Retrofit Proposed	34	Y	CEILING	2,755	1,066	115
817	1 - BIGELOW MIDDLE SCHOOL	h1	hall 1	13	88	G	13	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast, Outboard Lamps Only	42	Y	CEILING	4,408	2,887	831
818	1 - BIGELOW MIDDLE SCHOOL	h1	hall 1	1	34	G	1	No Retrofit Proposed	34	Y		4,408	2,887	52
820	1 - BIGELOW MIDDLE SCHOOL	209b	girls restroom	3	34	G	3	No Retrofit Proposed	34	Y	CEILING	2,755	1,066	172
821	1 - BIGELOW MIDDLE SCHOOL	209c	faculty restroom	1	34	G	1	No Retrofit Proposed	34	Y	WALL	2,755	1,066	57
832	1 - BIGELOW MIDDLE SCHOOL	215a	hall 2	7	88	G	7	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast, Outboard Lamps Only	42	Y	CEILING	4,408	2,887	447

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833	1 - BIGELOW MIDDLE SCHOOL	215a	hall 2	1	34	G	1	No Retrofit Proposed	34	Y		4,408	2,887	52
837	1 - BIGELOW MIDDLE SCHOOL	218a	hall 3	5	56	G	5	New 2'x2' Recessed Troffer w/ (2) F17T8 Lamps & (1) 2/17 Elec. Normal-Power High Efficiency Ballast	30	Y	CEILING	4,408	2,887	228
841	1 - BIGELOW MIDDLE SCHOOL	219	boys locker room	25	73	G	25	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	CEILING	2,755	1,066	1,900
842	1 - BIGELOW MIDDLE SCHOOL	219	boys locker room	3	112	G	3	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y		2,755	1,066	426
845	1 - BIGELOW MIDDLE SCHOOL	219a	locker room office	1	112	G	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	1,406	1,276	11
848	1 - BIGELOW MIDDLE SCHOOL	150	gymnasium	30	295	G	30	New Big Gym Fixture w/ (4) F54T5HO Lamps & (2) 2/54 T5 Elec. HO Ballast, Single Pendent Mount, Wire Guard	234	Y	CEILING	3,211	2,130	7,589
856	1 - BIGELOW MIDDLE SCHOOL	116a	locker room office	1	112	G	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	1,406	1,276	11
857	1 - BIGELOW MIDDLE SCHOOL	116b	hall 4	7	73	G	7	Relamp & Reballast w/ (2) F17T8 Lamps & (1) 2/17 Elec. Normal-Power High Efficiency Ballast, 2'x2' White Reflector Kit	30	Y	CEILING	4,408	2,887	320
858	1 - BIGELOW MIDDLE SCHOOL	116b	hall 4	7	73	G	7	Relamp & Reballast w/ (2) F17T8 Lamps & (1) 2/17 Elec. Normal-Power High Efficiency Ballast, 2'x2' White Reflector Kit	30	Y		4,408	2,887	320
859	1 - BIGELOW MIDDLE SCHOOL	116b	hall 4	3	90	G	3	Relamp w/ (1) 19 watt Compact Fluorescent Screw-In	19	Y		4,408	2,887	87
866	1 - BIGELOW MIDDLE SCHOOL	114a	womens restroom	1	34	G	1	No Retrofit Proposed	34	Y	WALL	2,755	1,066	57
867	1 - BIGELOW MIDDLE SCHOOL	114a	womens restroom	1	34	G	1	No Retrofit Proposed	34	Y		2,755	1,066	57
868	1 - BIGELOW MIDDLE SCHOOL	114b	mens restroom	1	58	G	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,755	1,066	71
869	1 - BIGELOW MIDDLE SCHOOL	114b	mens restroom	1	34	G	1	No Retrofit Proposed	34	Y		2,755	1,066	57
873	1 - BIGELOW MIDDLE SCHOOL	118	teachers lounge	8	88	G	8	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	1,609	1,188	212
874	1 - BIGELOW MIDDLE SCHOOL	118	teachers lounge	1	34	G	1	No Retrofit Proposed	34	Y		1,609	1,188	14
875	1 - BIGELOW MIDDLE SCHOOL	117	exercise room	2	58	G	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	3,211	2,130	91
876	1 - BIGELOW MIDDLE SCHOOL	117	exercise room	2	112	G	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y		3,211	2,130	182
877	1 - BIGELOW MIDDLE SCHOOL	118a	office	2	88	G	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	1,406	1,276	16
889	1 - BIGELOW MIDDLE SCHOOL	122	kitchen	18	88	G	18	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	2,762	2,200	637
890	1 - BIGELOW MIDDLE SCHOOL	122	kitchen	1	34	G	1	No Retrofit Proposed	34	Y		2,762	2,200	19
891	1 - BIGELOW MIDDLE SCHOOL	122	kitchen	3	52	G	3	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	Y		2,762	2,200	22
910	1 - BIGELOW MIDDLE SCHOOL	126c	hall 10	9	88	G	9	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast, Outboard Lamps Only	42	Y	CEILING	4,408	2,887	575
911	1 - BIGELOW MIDDLE SCHOOL	126c	hall 10	2	88	G	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast, Outboard Lamps Only	42	Y		4,408	2,887	128
913	1 - BIGELOW MIDDLE SCHOOL	126c	hall 10	4	58	G	4	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	CEILING	4,408	2,887	274
915	1 - BIGELOW MIDDLE SCHOOL	126e	entryway	2	105	G	2	New 2'x4' Recessed Troffer w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	4,408	2,887	128

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918	1 - BIGELOW MIDDLE SCHOOL	126f	restroom	1	58	G	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	WALL	2,755	1,066	76
919	1 - BIGELOW MIDDLE SCHOOL	100a	hall 11	13	88	G	13	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast, Outboard Lamps Only	42	Y	CEILING	4,408	2,887	831
922	1 - BIGELOW MIDDLE SCHOOL	103	computer room	3	58	G	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	2,762	2,200	71
923	1 - BIGELOW MIDDLE SCHOOL	103	computer room	3	112	G	3	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y		2,762	2,200	142
924	1 - BIGELOW MIDDLE SCHOOL	103	computer lab	3	58	G	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	2,762	2,200	71
925	1 - BIGELOW MIDDLE SCHOOL	103	computer lab	3	112	G	3	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y		2,762	2,200	142
926	1 - BIGELOW MIDDLE SCHOOL	100	library	38	112	G	38	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	CEILING	2,762	2,200	1,794
927	1 - BIGELOW MIDDLE SCHOOL	100	library	2	58	G	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y		2,762	2,200	47
929	1 - BIGELOW MIDDLE SCHOOL	100b	office	2	88	G	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	Y	WALL	1,406	1,276	12
930	1 - BIGELOW MIDDLE SCHOOL	100c	copy room	2	88	G	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	Y	WALL	2,762	2,200	54
941	1 - BIGELOW MIDDLE SCHOOL	109b	office	2	112	G	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	1,406	1,276	22
942	1 - BIGELOW MIDDLE SCHOOL	109d	office	2	73	G	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,406	1,276	11
944	1 - BIGELOW MIDDLE SCHOOL	109e	office	4	73	G	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,406	1,276	22
946	1 - BIGELOW MIDDLE SCHOOL	107	office	2	88	G	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	1,406	1,276	16
947	1 - BIGELOW MIDDLE SCHOOL	105	server room	2	88	G	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	2,870	2,208	83
948	1 - BIGELOW MIDDLE SCHOOL	105a	boys restroom	2	34	G	2	No Retrofit Proposed	34	Y	CEILING	2,755	1,066	115
949	1 - BIGELOW MIDDLE SCHOOL	105c	girls restroom	3	34	G	3	No Retrofit Proposed	34	Y	CEILING	2,755	1,066	172
960	1 - BIGELOW MIDDLE SCHOOL	114a	study area	2	88	G	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	1,609	1,188	53
961	1 - BIGELOW MIDDLE SCHOOL	119	vacant office	1	58	G	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,406	1,276	11
963	1 - BIGELOW MIDDLE SCHOOL	121b	office	2	88	G	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	1,406	1,276	16
964	1 - BIGELOW MIDDLE SCHOOL	121c	storage	1	58	G	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	WALL	2,870	2,208	30
968	1 - BIGELOW MIDDLE SCHOOL	129a	nurses room	4	88	G	4	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	2,762	2,200	142
970	1 - BIGELOW MIDDLE SCHOOL	129c	copy room	6	90	G	2	New 8' Wrap Fixture w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast	48	Y	WALL	2,762	2,200	54
972	1 - BIGELOW MIDDLE SCHOOL	129	conference room	2	112	G	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	1,609	1,188	71
974	1 - BIGELOW MIDDLE SCHOOL	127	main office	9	88	G	9	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	Y	CEILING	2,762	2,200	243
975	1 - BIGELOW MIDDLE SCHOOL	125	office	1	73	G	1	New 2'x2' Surface Mount Box w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	WALL	1,406	1,276	6

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976	1 - BIGELOW MIDDLE SCHOOL	125	office	4	88	G	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	Y		1,406	1,276	25
977	1 - BIGELOW MIDDLE SCHOOL	125a	copy room	1	88	G	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	Y	WALL	2,762	2,200	27
978	1 - BIGELOW MIDDLE SCHOOL	125b	office	1	88	G	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	Y	WALL	1,406	1,276	6
979	1 - BIGELOW MIDDLE SCHOOL	125c	office	2	88	G	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	Y	WALL	1,406	1,276	12
980	1 - BIGELOW MIDDLE SCHOOL	123	principals office	5	88	G	5	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	Y	CEILING	1,406	1,276	31
1018	1 - BIGELOW MIDDLE SCHOOL	1b	hall 16	14	88	G	14	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast, Outboard Lamps Only	42	Y	CEILING	4,408	2,887	895
1024	1 - BIGELOW MIDDLE SCHOOL	3a	girls restroom	3	58	G	3	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	CEILING	2,755	1,066	228
1028	1 - BIGELOW MIDDLE SCHOOL	5a	staff restroom	1	58	G	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	WALL	2,755	1,066	76
1043	1 - BIGELOW MIDDLE SCHOOL	13a	restroom	1	56	G	1	Relamp & Reballast w/ (2) F17T8 Lamps & (1) 2/17 Elec. Low-Power High Efficiency Ballast	28	Y	WALL	2,755	1,066	47
1045	1 - BIGELOW MIDDLE SCHOOL	218c	mens restroom	2	52	G	2	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	Y	WALL	2,755	1,066	44
1047	1 - BIGELOW MIDDLE SCHOOL	218e	womens restroom	2	52	G	2	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	Y	WALL	2,755	1,066	44
1053	1 - BIGELOW MIDDLE SCHOOL	7b	janitor closet	1	58	G	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,870	2,208	28
1056	1 - BIGELOW MIDDLE SCHOOL	109a	office	2	112	G	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	1,406	1,276	22
1057	1 - BIGELOW MIDDLE SCHOOL	109c	office	2	73	G	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,406	1,276	11
1059	6 - POLICE HEADQUARTERS	301	OFFICE	2	58	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,957	1,284	141
1060	6 - POLICE HEADQUARTERS	302	OFFICE	4	58	A	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,957	1,284	281
1061	6 - POLICE HEADQUARTERS	303	ELEVATOR VESTIBULE	1	58	A	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	8,609	5,593	127
1062	6 - POLICE HEADQUARTERS	303	ELEVATOR VESTIBULE	1	15	A	1	No Retrofit Proposed	15	Y		8,609	5,593	45
1063	6 - POLICE HEADQUARTERS	304	OPEN OFFICES	5	88	A	5	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	5,148	2,310	894
1064	6 - POLICE HEADQUARTERS	304	OPEN OFFICES	1	58	A	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast, Parabolic Diffuser	45	Y		5,148	2,310	128
1065	6 - POLICE HEADQUARTERS	301	OFFICE	1	58	A	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast, Parabolic Diffuser	45	Y	WALL	2,957	1,284	75
1066	6 - POLICE HEADQUARTERS	305	OFFICE	1	58	A	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,957	1,284	70
1067	6 - POLICE HEADQUARTERS	305	OFFICE	1	58	A	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast, Parabolic Diffuser	45	Y	WALL	2,957	1,284	75

City of Newton
Lighting Occupancy Sensor Savings Calculations

ID	Bldg Name	Print #	Area Description	Pre Fixture Qty	Pre Watts/ Fixt	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts/ Fixt	Sensor Y or N	Sensor Type(s)	Pre Hours	Post Hours	KWH Saved/Yr
1068	6 - POLICE HEADQUATERS	306	OFFICE	2	58	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,957	1,284	141
1069	6 - POLICE HEADQUATERS	304	HALLWAY	2	58	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	8,609	5,593	253
1070	6 - POLICE HEADQUATERS	307	OFFICE	4	58	A	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	2,957	1,284	281
1071	6 - POLICE HEADQUATERS	307A	RESTROOM	1	58	A	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	4,569	1,444	131
1073	6 - POLICE HEADQUATERS	308	CONFERENCE ROOM	8	50	A	8	No Retrofit Proposed	50	Y	CEILING	6,881	4,033	1,139
1074	6 - POLICE HEADQUATERS	308	CONFERENCE ROOM	4	58	A	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y		6,881	4,033	478
1075	6 - POLICE HEADQUATERS	309	SKYLIGHT/CORRIDOR	4	30	A	4	No Retrofit Proposed	30	Y	CEILING	8,609	5,593	362
1076	6 - POLICE HEADQUATERS	309	SKYLIGHT/CORRIDOR	4	112	A	4	New 8' Wrap Fixture w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast	65	Y		8,609	5,593	784
1079	6 - POLICE HEADQUATERS	310	WOMENS RESTROOM	1	58	A	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	WALL	4,569	1,444	141
1080	6 - POLICE HEADQUATERS	311	mens restroom	1	58	A	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	WALL	4,569	1,444	141
1082	6 - POLICE HEADQUATERS	312	OFFICE	4	58	A	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	2,957	1,284	281
1083	6 - POLICE HEADQUATERS	312	OFFICE	1	58	A	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast, Parabolic Diffuser	45	Y		2,957	1,284	75
1084	6 - POLICE HEADQUATERS	313	BREAK AREA	2	58	A	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	WALL	6,881	4,033	256
1085	6 - POLICE HEADQUATERS	314	EVIDENCE PROCESSING	3	42	A	3	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	Y	WALL	2,957	1,284	110
1087	6 - POLICE HEADQUATERS	315	OPEN OFFICES	8	58	A	8	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	5,148	2,310	953
1088	6 - POLICE HEADQUATERS	315	OPEN OFFICES	8	58	A	8	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y		5,148	2,310	953
1089	6 - POLICE HEADQUATERS	316	OFFICE	2	58	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,957	1,284	141
1090	6 - POLICE HEADQUATERS	317	OFFICE	2	58	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,957	1,284	141
1091	6 - POLICE HEADQUATERS	318	CONFERENCE ROOM	2	58	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	6,881	4,033	239
1095	6 - POLICE HEADQUATERS	202	LOBBY	3	112	A	3	New 8' Wrap Fixture w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast	65	Y	CEILING	8,609	5,593	588
1096	6 - POLICE HEADQUATERS	202	LOBBY	4	30	A	4	No Retrofit Proposed	30	Y		8,609	5,593	362
1097	6 - POLICE HEADQUATERS	202	LOBBY	3	20	A	3	No Retrofit Proposed	20	Y		8,609	5,593	181
1098	6 - POLICE HEADQUATERS	203	WOMENS RESTROOM	3	58	A	3	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	CEILING	4,569	1,444	422
1099	6 - POLICE HEADQUATERS	203	WOMENS RESTROOM	2	17	A	2	No Retrofit Proposed	17	Y		4,569	1,444	106
1100	6 - POLICE HEADQUATERS	204	MENS RESTROOM	3	58	A	3	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	CEILING	4,569	1,444	422
1101	6 - POLICE HEADQUATERS	204	mens restroom	2	17	A	2	No Retrofit Proposed	17	Y		4,569	1,444	106
1103	6 - POLICE HEADQUATERS	206	CORRIDOR	2	58	A	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	CEILING	8,609	5,593	271

City of Newton
Lighting Occupancy Sensor Savings Calculations

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1108	6 - POLICE HEADQUATERS	208	BREAK ROOM	3	58	A	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	6,881	4,033	359
1109	6 - POLICE HEADQUATERS	209	GUARD ROOM	6	58	A	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	5,148	2,310	715
1110	6 - POLICE HEADQUATERS	210	OPEN OFFICE	6	58	A	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	5,148	2,310	715
1113	6 - POLICE HEADQUATERS	212a	OPEN OFFICES	6	58	A	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	5,148	2,310	715
1117	6 - POLICE HEADQUATERS	212c	OFFICES	4	58	A	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	5,148	2,310	477
1119	6 - POLICE HEADQUATERS	213b	OFFICE	5	58	A	5	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,957	1,284	351
1120	6 - POLICE HEADQUATERS	214	CONTROL ROOM	6	58	A	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	5,148	2,310	715
1121	6 - POLICE HEADQUATERS	215	SERVER ROOM	2	88	A	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	6,577	393	779
1122	6 - POLICE HEADQUATERS	216	OFFICE	2	88	A	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	2,957	1,284	211
1123	6 - POLICE HEADQUATERS	217	OFFICE	2	88	A	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	2,957	1,284	211
1124	6 - POLICE HEADQUATERS	218	DISPATCH CONTROL	1	58	A	1	No Retrofit Proposed	58	Y	CEILING	5,148	2,310	165
1125	6 - POLICE HEADQUATERS	218	DISPATCH CONTROL	1	58	A	1	No Retrofit Proposed	58	Y		5,148	2,310	165
1126	6 - POLICE HEADQUATERS	218	DISPATCH CONTROL	4	58	A	4	No Retrofit Proposed	58	Y		5,148	2,310	658
1127	6 - POLICE HEADQUATERS	218	DISPATCH CONTROL	1	58	A	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y		5,148	2,310	119
1128	6 - POLICE HEADQUATERS	218	DISPATCH CONTROL	1	58	A	1	No Retrofit Proposed	58	Y		5,148	2,310	165
1129	6 - POLICE HEADQUATERS	218	DISPATCH CONTROL	2	58	A	2	No Retrofit Proposed	58	Y		5,148	2,310	329
1130	6 - POLICE HEADQUATERS	218	DISPATCH CONTROL	1	88	A	1	No Retrofit Proposed	88	Y		5,148	2,310	250
1133	7 - POLICE GARAGE	102	RESTROOM	1	58	A	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	4,569	1,444	131
1134	7 - POLICE GARAGE	102	RESTROOM	1	58	A	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y		4,569	1,444	131
1141	7 - POLICE GARAGE	105	OFFICE	3	88	A	3	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	2,957	1,284	316
1144	7 - POLICE GARAGE	106A	WAIT AREA	2	88	A	2	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	CEILING	6,881	4,033	359
1145	7 - POLICE GARAGE	106B	OPEN OFFICES	6	58	A	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	5,148	2,310	715
1146	7 - POLICE GARAGE	106C	OFFICE	3	58	A	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	2,957	1,284	211
1147	7 - POLICE GARAGE	107A	STORAGE	3	174	A	3	Relamp & Reballast w/ (6) F28T8 Lamps & (2) 3/32 Elec. Low-Power High Efficiency Ballasts	126	Y	CEILING	6,577	393	2,338
1148	7 - POLICE GARAGE	107B	BREAK ROOM	1	88	A	1	Relamp & Reballast w/ (3) F28T8 Lamps & (1) 3/32 Elec. Low-Power High Efficiency Ballast	63	Y	WALL	6,881	4,033	179
1149	7 - POLICE GARAGE	107B	BREAK ROOM	1	42	A	1	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	Y		6,881	4,033	63
1150	7 - POLICE GARAGE	107C	RESTROOM	1	58	A	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	CEILING	4,569	1,444	141
1151	7 - POLICE GARAGE	107C	RESTROOM	1	156	A	1	Relamp w/ (3) 13 watt Compact Fluorescent Screw-In	39	Y		4,569	1,444	122

City of Newton
Lighting Occupancy Sensor Savings Calculations

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1152	7 - POLICE GARAGE	107D	STORAGE	1	58	A	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	6,577	393	260
1153	7 - POLICE GARAGE	106D	COPY ROOM	3	58	A	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	5,148	2,310	358
1154	7 - POLICE GARAGE	106E	CORRIDOR	2	58	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	8,609	5,593	253
1155	7 - POLICE GARAGE	106F	CLOTHING STORAGE	2	112	A	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	CEILING	6,577	393	1,039
1156	7 - POLICE GARAGE	206	STORAGE	3	58	A	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	6,577	393	779
1157	7 - POLICE GARAGE	108	STORAGE	4	174	A	4	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	CEILING	6,577	393	2,078
1158	7 - POLICE GARAGE	108	STORAGE	1	58	A	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y		6,577	393	260
1159	7 - POLICE GARAGE	106	ARMS STORAGE	2	112	A	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	CEILING	6,577	393	1,039
1162	6 - POLICE HEADQUATERS	2	OFFICE	4	58	C	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,957	1,284	281
1167	6 - POLICE HEADQUATERS	7	CORRIDOR	5	88	A	5	New 2'x2' Surface Mount Box w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	CEILING	8,609	5,593	679
1171	6 - POLICE HEADQUATERS	8	UTILITY ROOM	1	112	A	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	6,577	393	519
1172	6 - POLICE HEADQUATERS	10	PIPES/STORAGE	1	112	A	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	6,577	393	519
1175	6 - POLICE HEADQUATERS	12	WOMENS LOCKERS	2	58	A	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	CEILING	4,569	1,444	281
1176	6 - POLICE HEADQUATERS	12	WOMENS LOCKERS	1	58	A	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y		4,569	1,444	131
1177	6 - POLICE HEADQUATERS	13	WOMENS RESTROOM	4	17	A	4	No Retrofit Proposed	17	Y	CEILING	4,569	1,444	212
1178	6 - POLICE HEADQUATERS	13	WOMENS RESTROOM	1	58	A	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y		4,569	1,444	131
1179	6 - POLICE HEADQUATERS	14	FITNESS ROOM	7	58	A	7	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	5,148	2,310	834
1180	6 - POLICE HEADQUATERS	15	MENS RESTROOM	2	58	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	4,569	1,444	262
1181	6 - POLICE HEADQUATERS	15	MENS RESTROOM	6	17	A	6	No Retrofit Proposed	17	Y		4,569	1,444	319
1182	6 - POLICE HEADQUATERS	15	MENS RESTROOM	1	58	A	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y		4,569	1,444	131
1183	6 - POLICE HEADQUATERS	16	MENS LOCKERS	6	58	A	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	4,569	1,444	787
1184	6 - POLICE HEADQUATERS	17	OPEN OFFICE	1	112	A	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	CEILING	5,148	2,310	238
1185	6 - POLICE HEADQUATERS	17	OPEN OFFICE	1	58	A	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y		5,148	2,310	119
1186	6 - POLICE HEADQUATERS	17	OPEN OFFICE	3	58	A	3	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y		5,148	2,310	383
1190	6 - POLICE HEADQUATERS	19	OFFICE	1	58	A	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,957	1,284	70
1200	6 - POLICE HEADQUATERS	24	STORAGE	2	58	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	6,577	393	519
1227	8 - POLICE ANNEX	103	CONFERENCE ROOM	3	146	A	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	Y	WALL	6,881	4,033	410

City of Newton
Lighting Occupancy Sensor Savings Calculations

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1228	8 - POLICE ANNEX	104	MENS RESTROOM	1	73	A	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	WALL	4,569	1,444	141
1229	8 - POLICE ANNEX	103	CONFERENCE ROOM	1	73	A	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	WALL	6,881	4,033	128
1231	8 - POLICE ANNEX	105	WOMENS RESTROOM	1	73	A	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	Y	WALL	4,569	1,444	41
1232	8 - POLICE ANNEX	106	OFFICE	6	73	A	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,957	1,284	422
1233	8 - POLICE ANNEX	107	OFFICE	4	73	A	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,957	1,284	281
1234	8 - POLICE ANNEX	108	STORAGE CLOSET	1	32	A	1	Relamp & Reballast w/ (1) F17T8 Lamp & (1) 1/17 Elec. Low-Power High Efficiency Ballast	15	Y	WALL	6,577	393	93
1237	8 - POLICE ANNEX	1	RESTROOM HALL	2	73	A	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	CEILING	8,609	5,593	271
1238	8 - POLICE ANNEX	2	WOMENS RESTROOM	1	58	A	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	WALL	4,569	1,444	141
1239	8 - POLICE ANNEX	3	MENS RESTROOM	1	58	A	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	WALL	4,569	1,444	141
1240	8 - POLICE ANNEX	4	CORRIDOR	4	73	A	4	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	CEILING	8,609	5,593	543
1243	8 - POLICE ANNEX	5	LOCKERS	4	73	A	4	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	CEILING	4,569	1,444	562
1244	8 - POLICE ANNEX	6	OFFICE	4	73	A	4	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	CEILING	2,957	1,284	301
1245	8 - POLICE ANNEX	7	STORAGE	4	73	A	4	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	CEILING	6,577	393	1,113
1248	8 - POLICE ANNEX	8	OFFICES/CORRIDOR	9	73	A	9	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	CEILING	8,609	5,593	1,222
1249	8 - POLICE ANNEX	9	OFFICE	2	73	A	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	WALL	2,957	1,284	151
1250	8 - POLICE ANNEX	10	OFFICE	7	73	A	7	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	CEILING	5,148	2,310	894
1251	8 - POLICE ANNEX	11	STORAGE	1	73	A	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	6,577	393	260
1252	8 - POLICE ANNEX	3A	OFFICE	6	73	A	6	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	CEILING	5,148	2,310	766
1264	5 - CITY HALL	1	CAFETERIA	12	73	A	12	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast, Parabolic Diffuser	45	Y	CEILING	2,701	2,120	314
1265	5 - CITY HALL	1	CAFETERIA	1	150	A	1	No Retrofit Proposed	150	Y		2,701	2,120	87
1266	5 - CITY HALL	1	CAFETERIA	1	52	A	1	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	Y		2,701	2,120	8
1267	5 - CITY HALL	1	CAFETERIA	1	23	A	1	No Retrofit Proposed	23	Y		2,701	2,120	13
1269	5 - CITY HALL	2	HALLWAY	2	58	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	5,606	3,446	181
1270	5 - CITY HALL	3	WAIT AREA, 10A	2	60	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	8,735	2,804	498
1279	5 - CITY HALL	5A	BREAK/STORAGE, 10B	1	146	A	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	Y	WALL	2,702	2,070	30
1280	5 - CITY HALL	5B	CONFERENCE ROOM, 10B	1	146	A	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	Y	WALL	8,735	2,804	285
1282	5 - CITY HALL	6	OFFICE, 10C	2	73	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,540	1,189	29
1291	5 - CITY HALL	9A	COPY AREA	2	86	A	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	WALL	2,702	2,070	57

City of Newton
Lighting Occupancy Sensor Savings Calculations

ID	Bldg Name	Print #	Area Description	Pre Fixture Qty	Pre Watts/ Fixt	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts/ Fixt	Sensor Y or N	Sensor Type(s)	Pre Hours	Post Hours	KWH Saved/Yr
1298	5 - CITY HALL	12	STORAGE/HALL	2	58	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	2,702	2,070	53
1301	5 - CITY HALL	13	CONFERENCE ROOM	6	90	A	6	No Retrofit Proposed	90	Y	CEILING	8,735	2,804	3,203
1302	5 - CITY HALL	13	CONFERENCE ROOM	4	20	A	4	No Retrofit Proposed	20	Y		8,735	2,804	474
1309	5 - CITY HALL	0A	STORAGE	2	172	A	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	2,702	2,070	106
1310	5 - CITY HALL	0B	STORAGE	2	300	A	2	Relamp w/ (1) 60 watt Compact Fluorescent Screw-In, 1" Socket Extender	60	Y	WALL	2,702	2,070	76
1311	5 - CITY HALL	0C	STORAGE	4	58	A	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	2,702	2,070	106
1312	5 - CITY HALL	0C	STORAGE	1	86	A	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y		2,702	2,070	53
1313	5 - CITY HALL	0D	STORAGE	2	90	A	2	Relamp w/ (1) 19 watt Compact Fluorescent Screw-In	19	Y	WALL	2,702	2,070	24
1314	5 - CITY HALL	0E	STORAGE	5	52	A	5	No Retrofit Proposed	52	Y	WALL	2,702	2,070	165
1315	5 - CITY HALL	0F	STORAGE	2	29	A	2	No Retrofit Proposed	29	Y	WALL	2,702	2,070	37
1316	5 - CITY HALL	0G	STORAGE	2	86	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,702	2,070	53
1317	5 - CITY HALL	0G	STORAGE	1	146	A	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y		2,702	2,070	53
1321	5 - CITY HALL	0I	EXERCISE ROOM	9	73	A	9	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	CEILING	8,735	2,804	2,402
1323	5 - CITY HALL	0I	MENS CHANGE ROOM	1	73	A	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	WALL	4,342	2,064	102
1324	5 - CITY HALL	15A	STACKS/STORAGE	4	29	A	4	No Retrofit Proposed	29	Y	WALL	2,702	2,070	73
1335	5 - CITY HALL	16	OFFICE, 15	2	86	A	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	WALL	1,540	1,189	32
1343	5 - CITY HALL	21	COPY ROOM	4	73	A	4	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	CEILING	2,702	2,070	114
1345	5 - CITY HALL	23	PRINT SHOP	3	112	A	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	Y	CEILING	2,701	2,120	113
1346	5 - CITY HALL	23	PRINT SHOP	1	112	A	1	Relamp & Reballast w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y		2,701	2,120	49
1347	5 - CITY HALL	24	PRINT SHOP	6	112	A	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	Y	CEILING	2,701	2,120	227
1349	5 - CITY HALL	25	COMPUTER ROOM	8	73	A	8	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	8,735	2,804	1,993
1352	5 - CITY HALL	28	EQUIPMENT STORAGE	3	73	A	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,702	2,070	80
1354	5 - CITY HALL	30	MENS RESTROOM	4	32	A	4	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	Y	WALL	4,342	2,064	200
1355	5 - CITY HALL	0I	CORRIDOR	1	86	A	1	Relamp & Reballast an 8' Fixture w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	5,606	3,446	91
1356	5 - CITY HALL	0I	CORRIDOR	4	50	A	4	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	Y		5,606	3,446	190
1358	5 - CITY HALL	0I	CORRIDOR	5	73	A	5	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	CEILING	5,606	3,446	486
1360	5 - CITY HALL	0K	OFFICE, 10E	2	58	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,540	1,189	29
1361	5 - CITY HALL	0K	OFFICE	2	58	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,540	1,189	29
1362	5 - CITY HALL	0L	WOMENS RESTROOM	1	58	A	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	WALL	4,342	2,064	102

City of Newton
Lighting Occupancy Sensor Savings Calculations

ID	Bldg Name	Print #	Area Description	Pre Fixture Qty	Pre Watts/ Fixt	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts/ Fixt	Sensor Y or N	Sensor Type(s)	Pre Hours	Post Hours	KWH Saved/Yr
1363	5 - CITY HALL	0L	WOMENS RESTROOM	1	38	A	1	Relamp & Reballast w/ (1) F25T8 Lamps & (1) 1/25 Elec. Low-Power High Efficiency Ballast	21	Y		4,342	2,064	48
1369	5 - CITY HALL	200	207 INSPECTION	17	146	A	17	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	Y	CEILING	2,701	2,120	474
1370	5 - CITY HALL	201	207 INSPECTION	3	112	A	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. High-Power High Efficiency Ballast, 2'x4' White Reflector Kit	65	Y	CEILING	2,701	2,120	113
1375	5 - CITY HALL	206	OFFICE 207A	4	146	A	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	Y	WALL	1,540	1,189	67
1377	5 - CITY HALL	208	OFFICE 207B	4	146	A	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	Y	WALL	1,540	1,189	67
1378	5 - CITY HALL	209	HALL 207	3	73	A	3	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	CEILING	5,606	3,446	292
1380	5 - CITY HALL	211	HALL 2ND	9	29	A	5	No Retrofit Proposed	29	Y	CEILING	5,606	3,446	313
1382	5 - CITY HALL	213	MENS 207	3	73	A	3	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	CEILING	4,342	2,064	307
1389	5 - CITY HALL	220	COPY 211	4	60	A	4	Relamp w/ (1) 15 watt Compact Fluorescent Screw-In, w/ R30 Reflector, Dimmable Ballast	15	Y	WALL	2,702	2,070	38
1397	5 - CITY HALL	228	MAYOR	4	146	A	4	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	1,540	1,189	118
1405	5 - CITY HALL	236	214A	1	146	A	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	1,540	1,189	29
1406	5 - CITY HALL	237	214B	1	146	A	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	1,540	1,189	29
1407	5 - CITY HALL	238	214C	1	146	A	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	1,540	1,189	29
1408	5 - CITY HALL	239	214D	2	146	A	2	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	1,540	1,189	59
1409	5 - CITY HALL	240	214E	4	73	A	4	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	WALL	1,540	1,189	63
1413	5 - CITY HALL	244	214F	3	73	A	3	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	WALL	1,540	1,189	47
1415	5 - CITY HALL	246	214G	1	146	A	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	1,540	1,189	29
1419	5 - CITY HALL	250	218A	2	73	A	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	WALL	1,540	1,189	32
1421	5 - CITY HALL	252	220 MIS	6	73	A	6	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	2,701	2,120	147
1422	5 - CITY HALL	253	220A	4	73	A	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	8,735	2,804	996
1423	5 - CITY HALL	254	WOMEN	4	73	A	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	CEILING	4,342	2,064	383
1424	5 - CITY HALL	255	BATH	1	73	A	1	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	WALL	4,342	2,064	102
1425	5 - CITY HALL	256		4	146	A	4	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	CEILING	8,735	2,804	1,993
1426	5 - CITY HALL	257		8	60	A	8	Relamp w/ (1) 13 watt Compact Fluorescent Screw-In	13	Y	CEILING	8,735	2,804	617
1447	5 - CITY HALL	278		4	146	A	4	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	1,540	1,189	118
1450	5 - CITY HALL	281	203 LOUNGE	2	73	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	8,735	2,804	498
1452	5 - CITY HALL	283	WOMEN	2	42	A	2	Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	Y	WALL	4,342	2,064	100

City of Newton
Lighting Occupancy Sensor Savings Calculations

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1456	5 - CITY HALL	287	204A	2	146	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	Y	WALL	1,540	1,189	34
1460	5 - CITY HALL	102	102A	1	146	A	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	1,540	1,189	29
1462	5 - CITY HALL	104	102B	4	146	A	4	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	1,540	1,189	118
1465	5 - CITY HALL	107	101A	5	146	A	5	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	Y	WALL	1,540	1,189	84
1466	5 - CITY HALL	108	VAULT	2	146	A	2	Relamp & Reballast w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast, Tube Guard	84	Y	WALL	2,702	2,070	106
1467	5 - CITY HALL	109	HALL 100	8	29	A	8	No Retrofit Proposed	29	Y	CEILING	5,606	3,446	501
1488	5 - CITY HALL	130	WOMENS	1	73	A	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	4,342	2,064	96
1489	5 - CITY HALL	131	WOMENS	1	42	A		Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	Y	WALL	4,342	2,064	50
1492	5 - CITY HALL	134	MENS	1	73	A	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	4,342	2,064	96
1493	5 - CITY HALL	135	MENS	1	42	A		Relamp & Reballast w/ (1) F28T8 Lamp & (1) 1/32 Elec. Low-Power High Efficiency Ballast	22	Y	WALL	4,342	2,064	50
1494	5 - CITY HALL	136	5 DIS VET	2	146	A	2	Relamp & Reballast w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	2,701	2,120	98
1497	5 - CITY HALL	139	OFF 2	2	73	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,540	1,189	29
1498	5 - CITY HALL	140	CONF 1	2	73	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	8,735	2,804	498
1500	5 - CITY HALL	142	OFF 116A	1	146	A	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	1,540	1,189	29
1501	5 - CITY HALL	143	OFF 116B	1	146	A	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	1,540	1,189	29
1502	5 - CITY HALL	144	OFF 116C	1	146	A	1	Relamp & Reballast an 8' Fixture w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	1,540	1,189	29
1503	5 - CITY HALL	145	SUPPLIES 116D	1	73	A	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,702	2,070	27
1505	5 - CITY HALL	147	115 TRES B	2	73	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,540	1,189	29
1515	5 - CITY HALL	157	108 A	4	73	A	4	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,540	1,189	59
1516	5 - CITY HALL	158	107A	2	73	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,540	1,189	29
1519	5 - CITY HALL	161	107B	2	73	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,540	1,189	29
1520	5 - CITY HALL	162	107C	3	73	A	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,540	1,189	44
1521	5 - CITY HALL	163	107D	2	73	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,540	1,189	29
1522	5 - CITY HALL	164	107E	2	146	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Normal-Power High Efficiency Ballast, 2'x4' White Reflector Kit	48	Y	WALL	1,540	1,189	34
1525	5 - CITY HALL	167	107F	6	146	A	2	Relamp & Reballast w/ (4) F28T8 Lamps & (1) 4/32 Elec. Low-Power High Efficiency Ballast	84	Y	WALL	1,540	1,189	59
1526	5 - CITY HALL	168	WOMENS	3	73	A	3	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	CEILING	4,342	2,064	307
1528	5 - CITY HALL	170	106A	2	73	A	2	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,540	1,189	29

City of Newton
Lighting Occupancy Sensor Savings Calculations

ID	Bldg Name	Print #	Area Description	Pre Fixture Qty	Pre Watts/ Fixt	Hours Code Pre	Post Fixture Qty	Proposed Description	Post Watts/ Fixt	Sensor Y or N	Sensor Type(s)	Pre Hours	Post Hours	KWH Saved/Yr
1530	5 - CITY HALL	172	105A COPY	1	73	A	1	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	2,702	2,070	27
1531	5 - CITY HALL	173	105B	3	73	A	3	Relamp & Reballast w/ (2) F28T8 Lamps & (1) 2/32 Elec. Low-Power High Efficiency Ballast	42	Y	WALL	1,540	1,189	44
1533	5 - CITY HALL	175	MENS	3	73	A	3	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	WALL	4,342	2,064	307
1539	5 - CITY HALL	181	104B	2	73	A	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	WALL	1,540	1,189	32
1542	5 - CITY HALL	184	104D	2	73	A	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	WALL	1,540	1,189	32
1543	5 - CITY HALL	185	104E	2	73	A	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	WALL	1,540	1,189	32
1544	5 - CITY HALL	186	104F	4	73	A	4	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	WALL	1,540	1,189	63
1545	5 - CITY HALL	187	104G	2	73	A	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	WALL	1,540	1,189	32
1546	5 - CITY HALL	188	104H	2	73	A	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	WALL	1,540	1,189	32
1547	5 - CITY HALL	189	104I	2	73	A	2	New 2'x2' Recessed Troffer w/ (3) F17T8 Lamps & (1) 3/17 Elec. Normal-Power High Efficiency Ballast	45	Y	WALL	1,540	1,189	32
TOTAL										Y				196,313

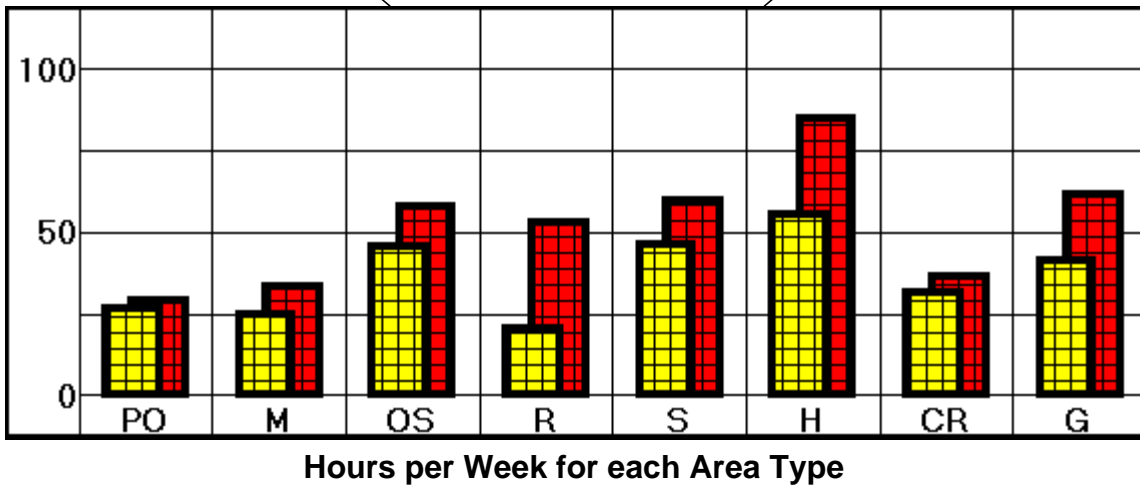
***Lighting System Improvements
II. Logger Occupancy Data***

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Area Type Averages

NORESCO, NEWTON - BIGELOW MIDDLE SCHOOL

Area Type Averages				Normalized Weekly Lights On					Normalized Weekly Occupied					
Area Type	Qty	Watts		Peak	Off	Shldr 1	Shldr 2	Total	Peak	Off	Shldr 1	Shldr 2	Total	% sav
Private Office	PO	2	345	29.30	0.00	0.00	0.00	29.30	26.59	0.00	0.00	0.00	26.59	9.25%
Meeting Rooms	M	1	180	33.52	0.00	0.00	0.00	33.52	24.75	0.00	0.00	0.00	24.75	26.16%
Open Space	OS	5	1552	57.55	0.00	0.00	0.00	57.55	45.84	0.00	0.00	0.00	45.84	20.35%
Restroom	R	6	391	52.98	0.00	0.00	0.00	52.98	20.50	0.00	0.00	0.00	20.50	61.31%
Storage	S	1	300	59.79	0.00	0.00	0.00	59.79	46.00	0.00	0.00	0.00	46.00	23.06%
Hallway	H	5	672	84.77	0.00	0.00	0.00	84.77	55.51	0.00	0.00	0.00	55.51	34.52%
Classroom	CR	10	726	36.36	0.00	0.00	0.00	36.36	31.45	0.00	0.00	0.00	31.45	13.50%
Gym	G	2	5400	61.75	0.00	0.00	0.00	61.75	40.96	0.00	0.00	0.00	40.96	33.67%
Building Average		32696		55.99			0.00	55.99	39.69			0.00	39.69	29.11%



Data Logger Detail for NORESKO, NEWTON - BIGELOW MIDDLE SCHOOL Page 1 of 1

All Loggers Listed			Hours Installed							Lights On					Occupied				
Logger	Room Location	Ty	Total	Peak	Off	Shldr 1	Shldr 2	Installed	Removed	Peak	Off	Shldr 1	Shldr 2	Total	Peak	Off	Shldr 1	Shldr 2	Total
20807	BOYS BATH BY G-05	R	480.02	480.02	0.00	0.00	0.00	5/19/09 8:32 AM	6/08/09 8:32 AM	117.40	0.00	0.00	0.00	117.40	65.20	0.00	0.00	0.00	65.20
22829	BOYS LOCKER ROOM BY	R	480.72	480.72	0.00	0.00	0.00	5/19/09 7:59 AM	6/08/09 8:41 AM	125.67	0.00	0.00	0.00	125.67	75.67	0.00	0.00	0.00	75.67
22676	BOYS ROOM - BY 208	R	478.18	478.18	0.00	0.00	0.00	5/19/09 9:24 AM	6/08/09 7:34 AM	131.85	0.00	0.00	0.00	131.85	83.52	0.00	0.00	0.00	83.52
20655	CAFE - FOOD PREP	OS	480.52	480.52	0.00	0.00	0.00	5/19/09 7:51 AM	6/08/09 8:21 AM	109.73	0.00	0.00	0.00	109.73	106.27	0.00	0.00	0.00	106.27
23929	CAFETERIA HALL	H	479.92	479.92	0.00	0.00	0.00	5/19/09 8:24 AM	6/08/09 8:18 AM	243.60	0.00	0.00	0.00	243.60	183.57	0.00	0.00	0.00	183.57
20740	GYM - 2ND HALF	G	480.87	480.87	0.00	0.00	0.00	5/19/09 7:55 AM	6/08/09 8:46 AM	177.00	0.00	0.00	0.00	177.00	121.03	0.00	0.00	0.00	121.03
20838	GYM - LOBBY	OS	478.72	478.72	0.00	0.00	0.00	5/19/09 8:28 AM	6/08/09 7:10 AM	208.07	0.00	0.00	0.00	208.07	144.23	0.00	0.00	0.00	144.23
24858	GYM - MAIN AREA	G	479.33	479.33	0.00	0.00	0.00	5/19/09 7:54 AM	6/08/09 7:13 AM	175.93	0.00	0.00	0.00	175.93	113.03	0.00	0.00	0.00	113.03
23705	HALL BY G -03 AND G - 04	H	478.12	478.12	0.00	0.00	0.00	5/19/09 9:36 AM	6/08/09 7:42 AM	201.57	0.00	0.00	0.00	201.57	122.47	0.00	0.00	0.00	122.47
24967	HALL BY LIBRARY - RM 104	H	478.70	478.70	0.00	0.00	0.00	5/19/09 9:09 AM	6/08/09 7:50 AM	233.82	0.00	0.00	0.00	233.82	174.78	0.00	0.00	0.00	174.78
20764	HALL BY MAIN OFFICE	H	479.08	479.08	0.00	0.00	0.00	5/19/09 8:57 AM	6/08/09 8:01 AM	238.50	0.00	0.00	0.00	238.50	172.00	0.00	0.00	0.00	172.00
23616	HALL BY ROOM 212	H	478.12	478.12	0.00	0.00	0.00	5/19/09 9:22 AM	6/08/09 7:28 AM	290.50	0.00	0.00	0.00	290.50	138.30	0.00	0.00	0.00	138.30
23085	HANDICAP BATH - BY GYM	R	477.97	477.97	0.00	0.00	0.00	5/19/09 9:17 AM	6/08/09 7:14 AM	128.40	0.00	0.00	0.00	128.40	32.47	0.00	0.00	0.00	32.47
24079	LIBRARY	OS	479.75	479.75	0.00	0.00	0.00	5/19/09 8:12 AM	6/08/09 7:56 AM	129.10	0.00	0.00	0.00	129.10	110.17	0.00	0.00	0.00	110.17
24273	MAIN OFFICE	OS	480.30	480.30	0.00	0.00	0.00	5/19/09 7:45 AM	6/08/09 8:02 AM	168.72	0.00	0.00	0.00	168.72	140.12	0.00	0.00	0.00	140.12
21805	MAIN OFFICE - MAIL ROOM	S	479.12	479.12	0.00	0.00	0.00	5/19/09 9:01 AM	6/08/09 8:07 AM	170.50	0.00	0.00	0.00	170.50	131.20	0.00	0.00	0.00	131.20
20876	MENS FACULTY - BY GYM	R	477.70	477.70	0.00	0.00	0.00	5/19/09 9:39 AM	6/08/09 7:20 AM	173.78	0.00	0.00	0.00	173.78	34.00	0.00	0.00	0.00	34.00
22647	NURSE OFFICE - MAIN AREA	PO	479.10	479.10	0.00	0.00	0.00	5/19/09 9:06 AM	6/08/09 8:11 AM	88.40	0.00	0.00	0.00	88.40	77.90	0.00	0.00	0.00	77.90
23734	ROOM 103	CR	479.67	479.67	0.00	0.00	0.00	5/19/09 8:14 AM	6/08/09 7:53 AM	120.38	0.00	0.00	0.00	120.38	114.45	0.00	0.00	0.00	114.45
23174	ROOM 114	CR	479.32	479.32	0.00	0.00	0.00	5/19/09 9:14 AM	6/08/09 8:32 AM	123.63	0.00	0.00	0.00	123.63	115.20	0.00	0.00	0.00	115.20
24430	ROOM 118 - FACULTY	OS	480.02	480.02	0.00	0.00	0.00	5/19/09 8:26 AM	6/08/09 8:26 AM	206.13	0.00	0.00	0.00	206.13	153.80	0.00	0.00	0.00	153.80
24226	ROOM 118A	M	478.75	478.75	0.00	0.00	0.00	5/19/09 9:40 AM	6/08/09 8:24 AM	95.53	0.00	0.00	0.00	95.53	70.53	0.00	0.00	0.00	70.53
24345	ROOM 205	CR	435.12	435.12	0.00	0.00	0.00	5/19/09 9:26 AM	6/06/09 12:32 PM	78.97	0.00	0.00	0.00	78.97	74.63	0.00	0.00	0.00	74.63
20775	ROOM 206	CR	478.17	478.17	0.00	0.00	0.00	5/19/09 9:27 AM	6/08/09 7:36 AM	100.73	0.00	0.00	0.00	100.73	80.97	0.00	0.00	0.00	80.97
21580	ROOM 208	CR	478.15	478.15	0.00	0.00	0.00	5/19/09 9:24 AM	6/08/09 7:32 AM	124.10	0.00	0.00	0.00	124.10	102.00	0.00	0.00	0.00	102.00
20794	ROOM 211	CR	480.47	480.47	0.00	0.00	0.00	5/19/09 8:08 AM	6/08/09 8:35 AM	131.85	0.00	0.00	0.00	131.85	90.18	0.00	0.00	0.00	90.18
21783	ROOM 216	CR	480.53	480.53	0.00	0.00	0.00	5/19/09 8:07 AM	6/08/09 8:38 AM	97.93	0.00	0.00	0.00	97.93	81.20	0.00	0.00	0.00	81.20
22959	ROOM 217	CR	480.62	480.62	0.00	0.00	0.00	5/19/09 8:04 AM	6/08/09 8:40 AM	98.68	0.00	0.00	0.00	98.68	90.85	0.00	0.00	0.00	90.85
22899	ROOM G-02	PO	478.17	478.17	0.00	0.00	0.00	5/19/09 9:38 AM	6/08/09 7:47 AM	78.57	0.00	0.00	0.00	78.57	73.60	0.00	0.00	0.00	73.60
24532	ROOM G-03	CR	478.17	478.17	0.00	0.00	0.00	5/19/09 9:35 AM	6/08/09 7:44 AM	74.70	0.00	0.00	0.00	74.70	65.10	0.00	0.00	0.00	65.10
22518	ROOM G-04	CR	478.22	478.22	0.00	0.00	0.00	5/19/09 9:33 AM	6/08/09 7:45 AM	78.53	0.00	0.00	0.00	78.53	75.07	0.00	0.00	0.00	75.07
21055	WOMENS FACULTY - BY GYM	R	478.17	478.17	0.00	0.00	0.00	5/19/09 9:15 AM	6/08/09 7:24 AM	228.58	0.00	0.00	0.00	228.58	59.87	0.00	0.00	0.00	59.87

Normalized Data Logger Detail for NORESCO, NEWTON - BIGELOW MIDDLE SCHOOL Page 1 of 1

All Loggers Listed			Load	Normalized Weekly Hours of Use					Normalized Weekly Hours of Occupancy					
Logger	Room Location	Ty	Watts	Peak	Off	Shldr 1	Shldr 2	Total	Peak	Off	Shldr 1	Shldr 2	Total	% sav
20807	BOYS BATH	R	120	41.09	0.00	0.00	0.00	41.09	22.82	0.00	0.00	0.00	22.82	44.46%
22829	BOYS	R	1830	43.92	0.00	0.00	0.00	43.92	26.44	0.00	0.00	0.00	26.44	39.80%
22676	BOYS ROOM -	R	120	46.32	0.00	0.00	0.00	46.32	29.34	0.00	0.00	0.00	29.34	36.66%
20655	CAFE - FOOD	OS	1620	38.37	0.00	0.00	0.00	38.37	37.15	0.00	0.00	0.00	37.15	3.18%
23929	CAFETERIA	H	480	85.27	0.00	0.00	0.00	85.27	64.26	0.00	0.00	0.00	64.26	24.64%
20740	GYM - 2ND	G	6000	61.84	0.00	0.00	0.00	61.84	42.29	0.00	0.00	0.00	42.29	31.61%
20838	GYM - LOBBY	OS	840	73.02	0.00	0.00	0.00	73.02	50.62	0.00	0.00	0.00	50.62	30.68%
24858	GYM - MAIN	G	4800	61.66	0.00	0.00	0.00	61.66	39.62	0.00	0.00	0.00	39.62	35.74%
23705	HALL BY G -03	H	720	70.83	0.00	0.00	0.00	70.83	43.03	0.00	0.00	0.00	43.03	39.25%
24967	HALL BY	H	780	82.06	0.00	0.00	0.00	82.06	61.34	0.00	0.00	0.00	61.34	25.25%
20764	HALL BY MAIN	H	660	83.63	0.00	0.00	0.00	83.63	60.32	0.00	0.00	0.00	60.32	27.87%
23616	HALL BY	H	720	102.08	0.00	0.00	0.00	102.08	48.60	0.00	0.00	0.00	48.60	52.39%
23085	HANDICAP	R	60	45.13	0.00	0.00	0.00	45.13	11.41	0.00	0.00	0.00	11.41	74.72%
24079	LIBRARY	OS	3860	45.21	0.00	0.00	0.00	45.21	38.58	0.00	0.00	0.00	38.58	14.66%
24273	MAIN OFFICE	OS	720	59.01	0.00	0.00	0.00	59.01	49.01	0.00	0.00	0.00	49.01	16.95%
21805	MAIN OFFICE -	S	300	59.79	0.00	0.00	0.00	59.79	46.00	0.00	0.00	0.00	46.00	23.06%
20876	MENS	R	94	61.12	0.00	0.00	0.00	61.12	11.96	0.00	0.00	0.00	11.96	80.43%
22647	NURSE	PO	360	31.00	0.00	0.00	0.00	31.00	27.32	0.00	0.00	0.00	27.32	11.87%
23734	ROOM 103	CR	510	42.16	0.00	0.00	0.00	42.16	40.09	0.00	0.00	0.00	40.09	4.91%
23174	ROOM 114	CR	900	43.33	0.00	0.00	0.00	43.33	40.38	0.00	0.00	0.00	40.38	6.81%
24430	ROOM 118 -	OS	720	72.14	0.00	0.00	0.00	72.14	53.83	0.00	0.00	0.00	53.83	25.38%
24226	ROOM 118A	M	180	33.52	0.00	0.00	0.00	33.52	24.75	0.00	0.00	0.00	24.75	26.16%
24345	ROOM 205	CR	660	30.49	0.00	0.00	0.00	30.49	28.82	0.00	0.00	0.00	28.82	5.48%
20775	ROOM 206	CR	660	35.39	0.00	0.00	0.00	35.39	28.45	0.00	0.00	0.00	28.45	19.61%
21580	ROOM 208	CR	660	43.60	0.00	0.00	0.00	43.60	35.84	0.00	0.00	0.00	35.84	17.80%
20794	ROOM 211	CR	660	46.10	0.00	0.00	0.00	46.10	31.53	0.00	0.00	0.00	31.53	31.61%
21783	ROOM 216	CR	450	34.24	0.00	0.00	0.00	34.24	28.39	0.00	0.00	0.00	28.39	17.09%
22959	ROOM 217	CR	600	34.49	0.00	0.00	0.00	34.49	31.76	0.00	0.00	0.00	31.76	7.92%
22899	ROOM G-02	PO	330	27.60	0.00	0.00	0.00	27.60	25.86	0.00	0.00	0.00	25.86	6.30%
24532	ROOM G-03	CR	1080	26.25	0.00	0.00	0.00	26.25	22.87	0.00	0.00	0.00	22.87	12.88%
22518	ROOM G-04	CR	1080	27.59	0.00	0.00	0.00	27.59	26.37	0.00	0.00	0.00	26.37	4.42%
21055	WOMENS	R	120	80.31	0.00	0.00	0.00	80.31	21.03	0.00	0.00	0.00	21.03	73.81%

Building Summary Totals for NORESKO, NEWTON - BIGELOW MIDDLE SCHOOL Page 1 of 1

Building Summary Totals				Lights On KWHR					Occupied KWHR				
Area Type		Qty	Watts	Peak	Off	Shldr 1	Shldr 2	Total	Peak	Off	Shldr 1	Shldr 2	Total
Private Office	PO	2	690	20	0	0	0	20	18	0	0	0	18
Meeting Rooms	M	1	180	6	0	0	0	6	4	0	0	0	4
Open Space	OS	5	7760	447	0	0	0	447	356	0	0	0	356
Restroom	R	6	2346	124	0	0	0	124	48	0	0	0	48
Storage	S	1	300	18	0	0	0	18	14	0	0	0	14
Hallway	H	5	3360	285	0	0	0	285	187	0	0	0	187
Classroom	CR	10	7260	264	0	0	0	264	228	0	0	0	228
Gym	G	2	10800	667	0	0	0	667	442	0	0	0	442
Building Totals			32696	1831			0	1831	1298			0	1298

BOYS BATH BY G-05

Area type: Restroom. Logger: 20807. Time delay 10 minutes. NORESKO, NEWTON - BIGELOW MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	63.483	24.000	24.267	9.174	13.267	5.015
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	63.483	24.000	24.267	9.174	13.267	5.015

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	29.100	9.700	16.100	5.367
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	29.100	9.700	16.100	5.367

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	3.667	1.222	0.767	0.256
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	3.667	1.222	0.767	0.256

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	56.533	24.000	7.700	3.269	5.267	2.236
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	56.533	24.000	7.700	3.269	5.267	2.236

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	28.000	9.333	14.733	4.911
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	28.000	9.333	14.733	4.911

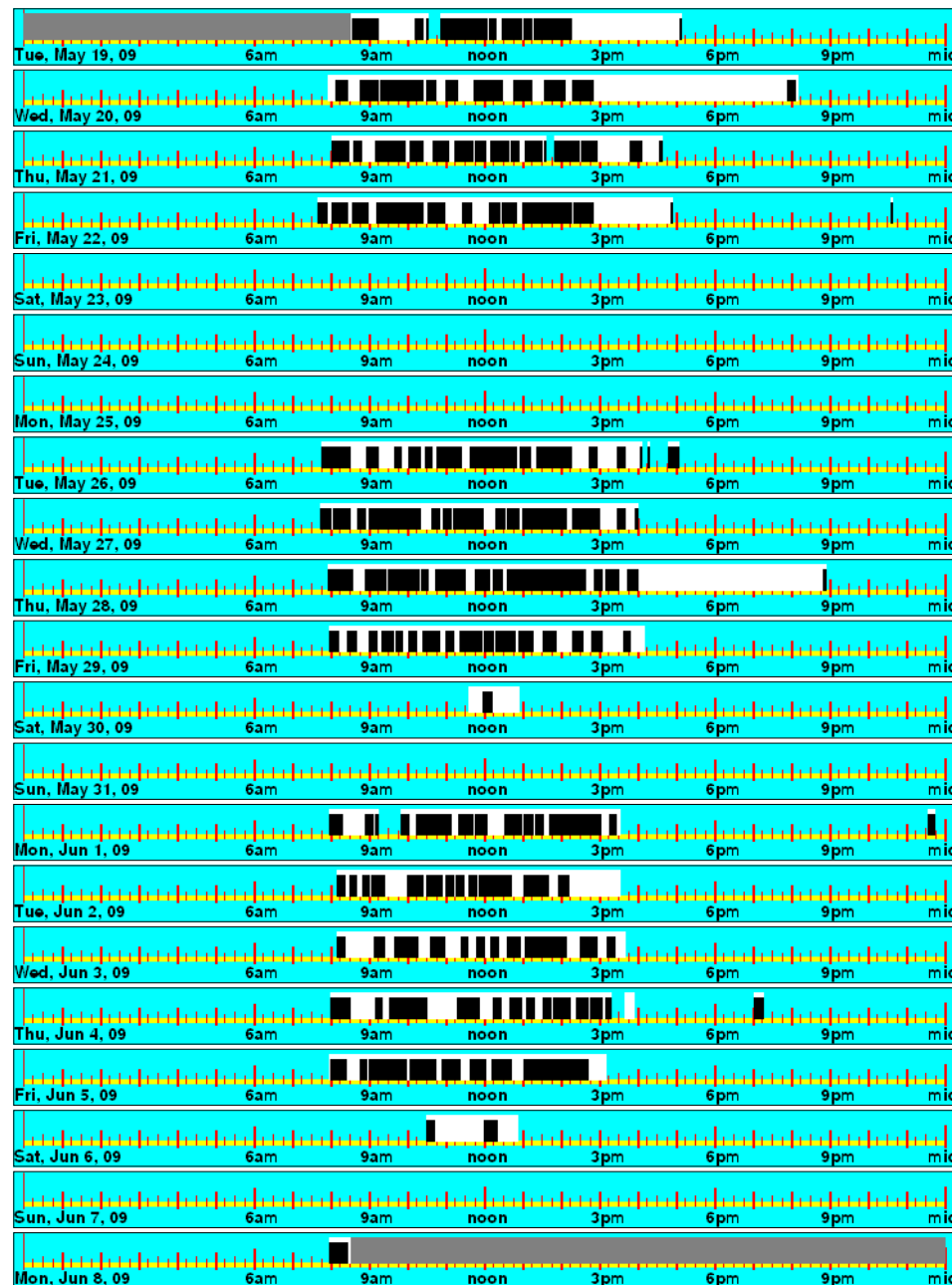
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	24.667	8.222	15.067	5.022
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	24.667	8.222	15.067	5.022

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	117.400	65.200	480.017	41.089	22.819	44.5%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	117.400	65.200	480.017	41.089	22.819	44.5%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	3.269	2.236	9.174	5.015	9.333	4.911	9.700	5.367	8.222	5.022	1.222	0.256
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	3.269	2.236	9.174	5.015	9.333	4.911	9.700	5.367	8.222	5.022	1.222	0.256

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	117.400	65.200	480.017	^ ^ ^ ^	41.089	22.819	44.5%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	117.400	65.200	480.017		41.089	22.819	44.5%



BOYS LOCKER ROOM BY OFFICE

Area type: Restroom. Logger: 22829. Time delay 10 minutes. NORESKO, NEWTON - BIGELOW MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	64.033	24.000	24.300	9.108	15.133	5.672
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	64.033	24.000	24.300	9.108	15.133	5.672

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	33.200	11.067	21.067	7.022
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	33.200	11.067	21.067	7.022

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	56.683	24.000	11.800	4.996	6.667	2.823
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	56.683	24.000	11.800	4.996	6.667	2.823

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	27.533	9.178	17.867	5.956
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	27.533	9.178	17.867	5.956

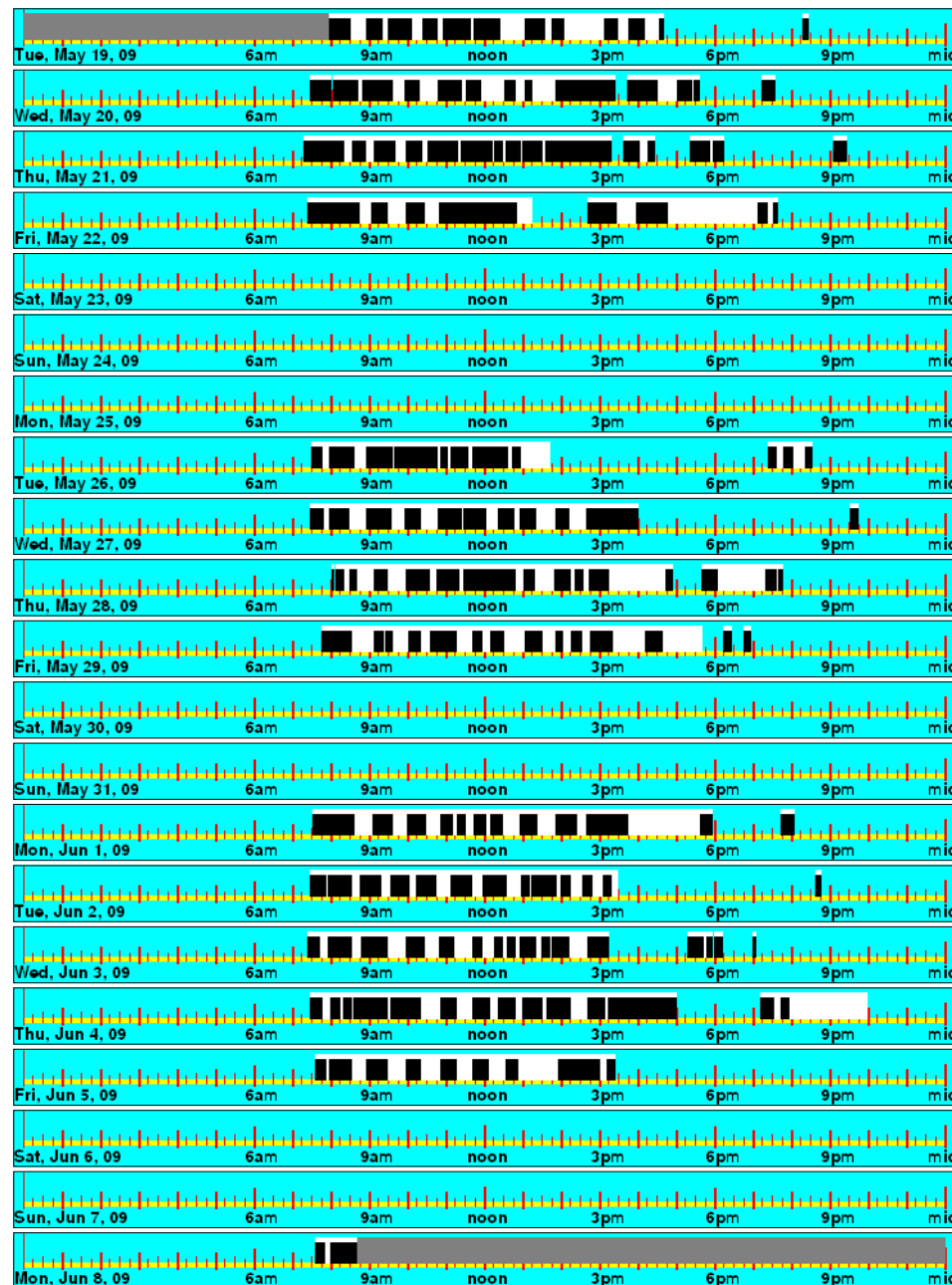
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	28.833	9.611	14.933	4.978
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	28.833	9.611	14.933	4.978

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	125.667	75.667	480.717	43.918	26.444	39.8%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	125.667	75.667	480.717	43.918	26.444	39.8%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	4.996	2.823	9.108	5.672	9.178	5.956	11.067	7.022	9.611	4.978	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	4.996	2.823	9.108	5.672	9.178	5.956	11.067	7.022	9.611	4.978	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	125.667	75.667	480.717	^ ^ ^ ^	43.918	26.444	39.8%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	125.667	75.667	480.717		43.918	26.444	39.8%



BOYS ROOM - BY 208

Area type: Restroom. Logger: 22676. Time delay 10 minutes. NORESO, NEWTON - BIGELOW MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	62.617	24.000	27.033	10.361	15.033	5.762
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	62.617	24.000	27.033	10.361	15.033	5.762

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	25.667	8.556	20.133	6.711
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	25.667	8.556	20.133	6.711

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	7.467	2.489	3.667	1.222
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	7.467	2.489	3.667	1.222

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	55.567	24.000	14.300	6.176	6.633	2.865
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	55.567	24.000	14.300	6.176	6.633	2.865

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	30.933	10.311	19.900	6.633
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	30.933	10.311	19.900	6.633

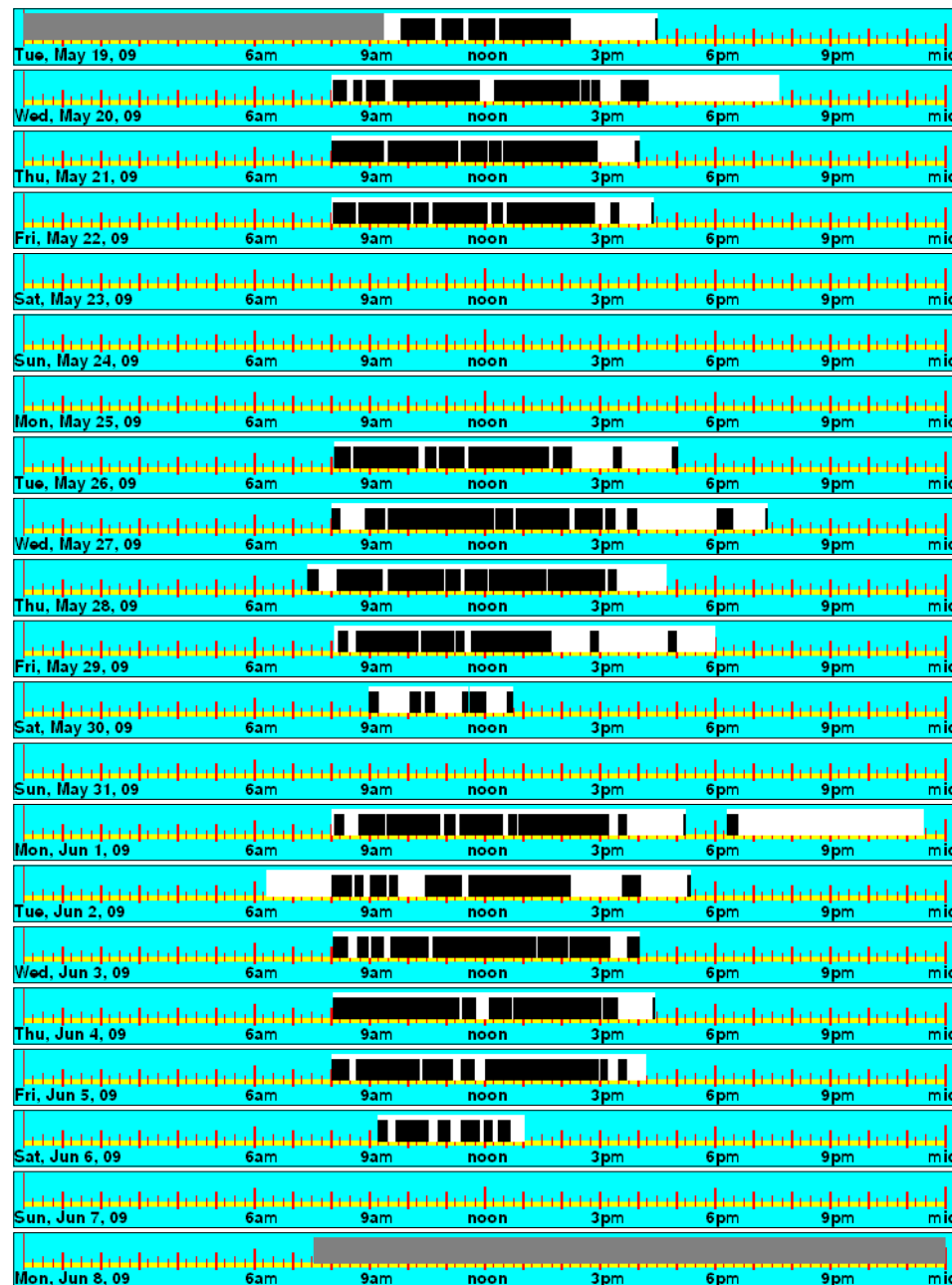
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	26.450	8.817	18.150	6.050
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	26.450	8.817	18.150	6.050

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	131.850	83.517	478.183	46.323	29.342	36.7%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	131.850	83.517	478.183	46.323	29.342	36.7%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	6.176	2.865	10.361	5.762	10.311	6.633	8.556	6.711	8.817	6.050	2.489	1.222
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	6.176	2.865	10.361	5.762	10.311	6.633	8.556	6.711	8.817	6.050	2.489	1.222

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	131.850	83.517	478.183	^ ^ ^ ^	46.323	29.342	36.7%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	131.850	83.517	478.183		46.323	29.342	36.7%



CAFE - FOOD PREP

Area type: Open Space. Logger: 20655. Time delay 10 minutes. NORESCO, NEWTON - BIGELOW MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	64.167	24.000	23.433	8.765	22.967	8.590
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	64.167	24.000	23.433	8.765	22.967	8.590

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	24.100	8.033	23.633	7.878
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	24.100	8.033	23.633	7.878

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	56.350	24.000	11.900	5.068	10.967	4.671
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	56.350	24.000	11.900	5.068	10.967	4.671

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	24.733	8.244	24.133	8.044
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	24.733	8.244	24.133	8.044

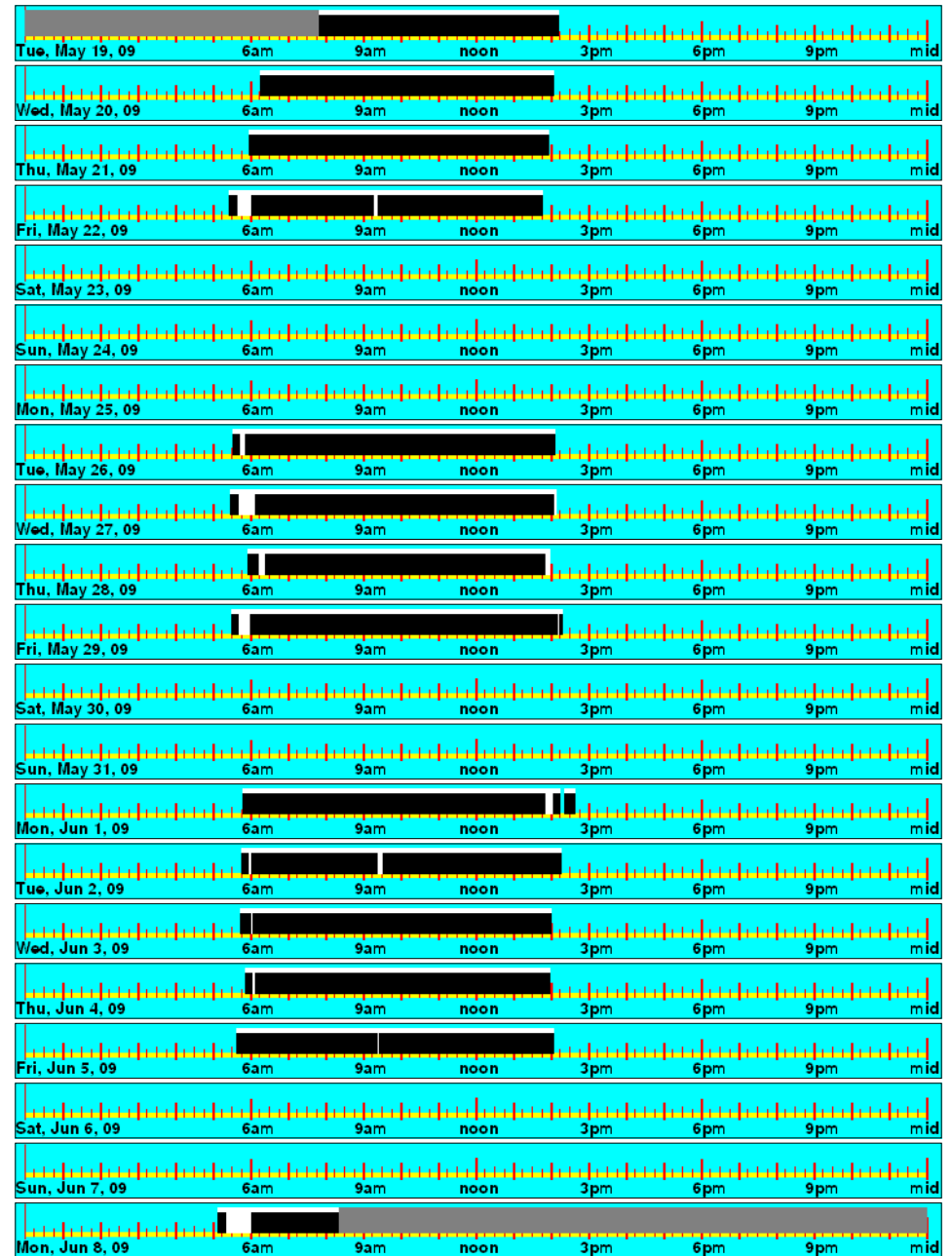
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	25.567	8.522	24.567	8.189
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	25.567	8.522	24.567	8.189

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	109.733	106.267	480.517	38.365	37.153	3.2%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	109.733	106.267	480.517	38.365	37.153	3.2%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	5.068	4.671	8.765	8.590	8.244	8.044	8.033	7.878	8.522	8.189	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	5.068	4.671	8.765	8.590	8.244	8.044	8.033	7.878	8.522	8.189	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	109.733	106.267	480.517	^ ^ ^ ^	38.365	37.153	3.2%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	109.733	106.267	480.517		38.365	37.153	3.2%



CAFETERIA HALL

Area type: Hallway. Logger: 23929. Time delay 10 minutes. NORESCO, NEWTON - BIGELOW MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	63.617	24.000	52.267	19.718	39.567	14.927
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	63.617	24.000	52.267	19.718	39.567	14.927

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	52.300	17.433	39.533	13.178
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	52.300	17.433	39.533	13.178

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	12.533	4.178	9.500	3.167
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	12.533	4.178	9.500	3.167

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	56.300	24.000	21.417	9.130	17.800	7.588
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	56.300	24.000	21.417	9.130	17.800	7.588

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	52.550	17.517	39.067	13.022
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	52.550	17.517	39.067	13.022

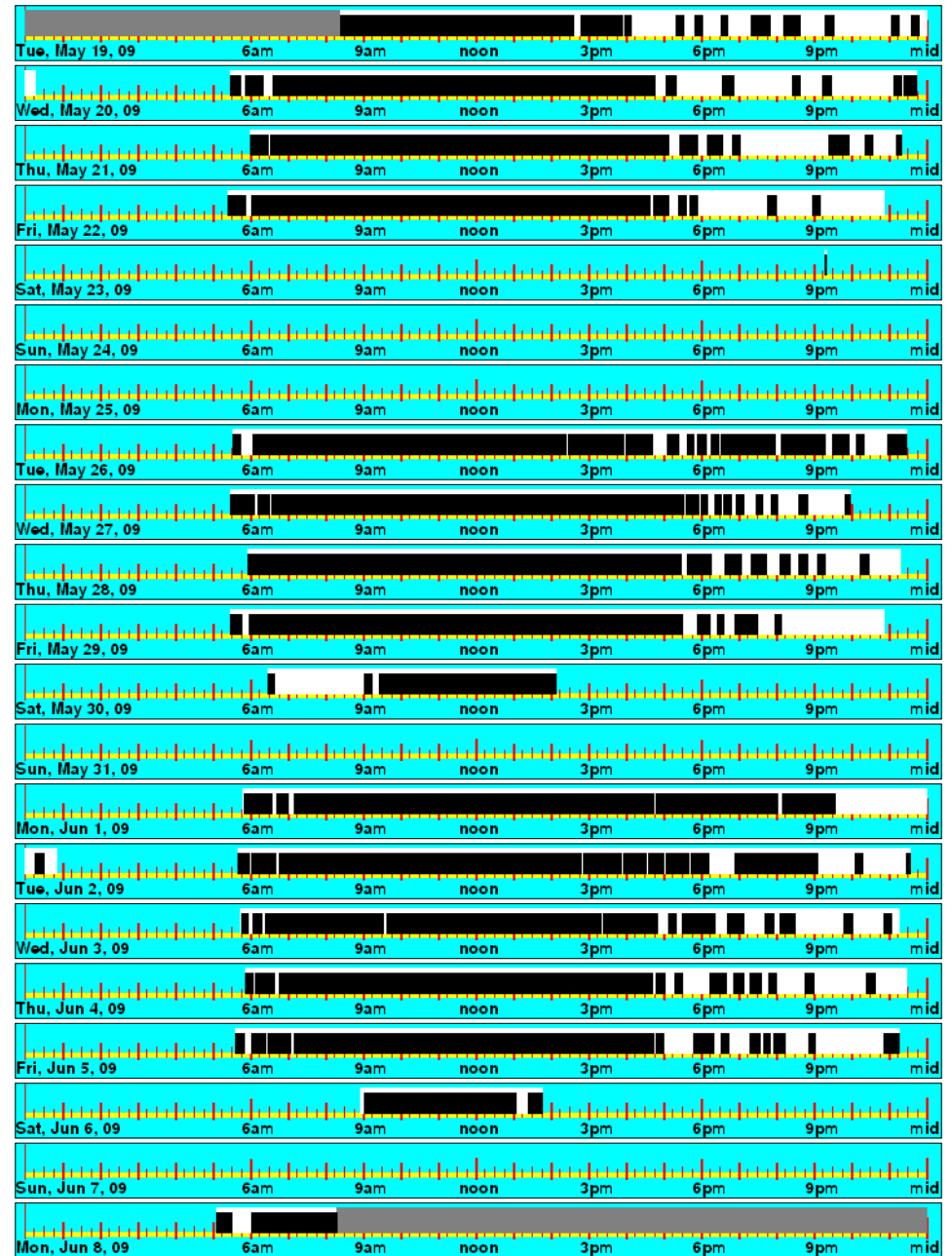
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	52.533	17.511	38.100	12.700
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	52.533	17.511	38.100	12.700

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	243.600	183.567	479.917	85.275	64.259	24.6%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	243.600	183.567	479.917	85.275	64.259	24.6%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	9.130	7.588	19.718	14.927	17.517	13.022	17.433	13.178	17.511	12.700	4.178	3.167
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	9.130	7.588	19.718	14.927	17.517	13.022	17.433	13.178	17.511	12.700	4.178	3.167

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	243.600	183.567	479.917	^ ^ ^ ^	85.275	64.259	24.6%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	243.600	183.567	479.917		85.275	64.259	24.6%



GYM - 2ND HALF

Area type: Gym. Logger: 20740. Time delay 10 minutes. NORESCO, NEWTON - BIGELOW MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	64.100	24.000	38.000	14.228	17.200	6.440
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	64.100	24.000	38.000	14.228	17.200	6.440

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	36.733	12.244	28.200	9.400
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	36.733	12.244	28.200	9.400

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	9.200	3.067	8.167	2.722
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	9.200	3.067	8.167	2.722

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	56.767	24.000	15.833	6.694	13.467	5.693
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	56.767	24.000	15.833	6.694	13.467	5.693

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	41.133	13.711	26.733	8.911
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	41.133	13.711	26.733	8.911

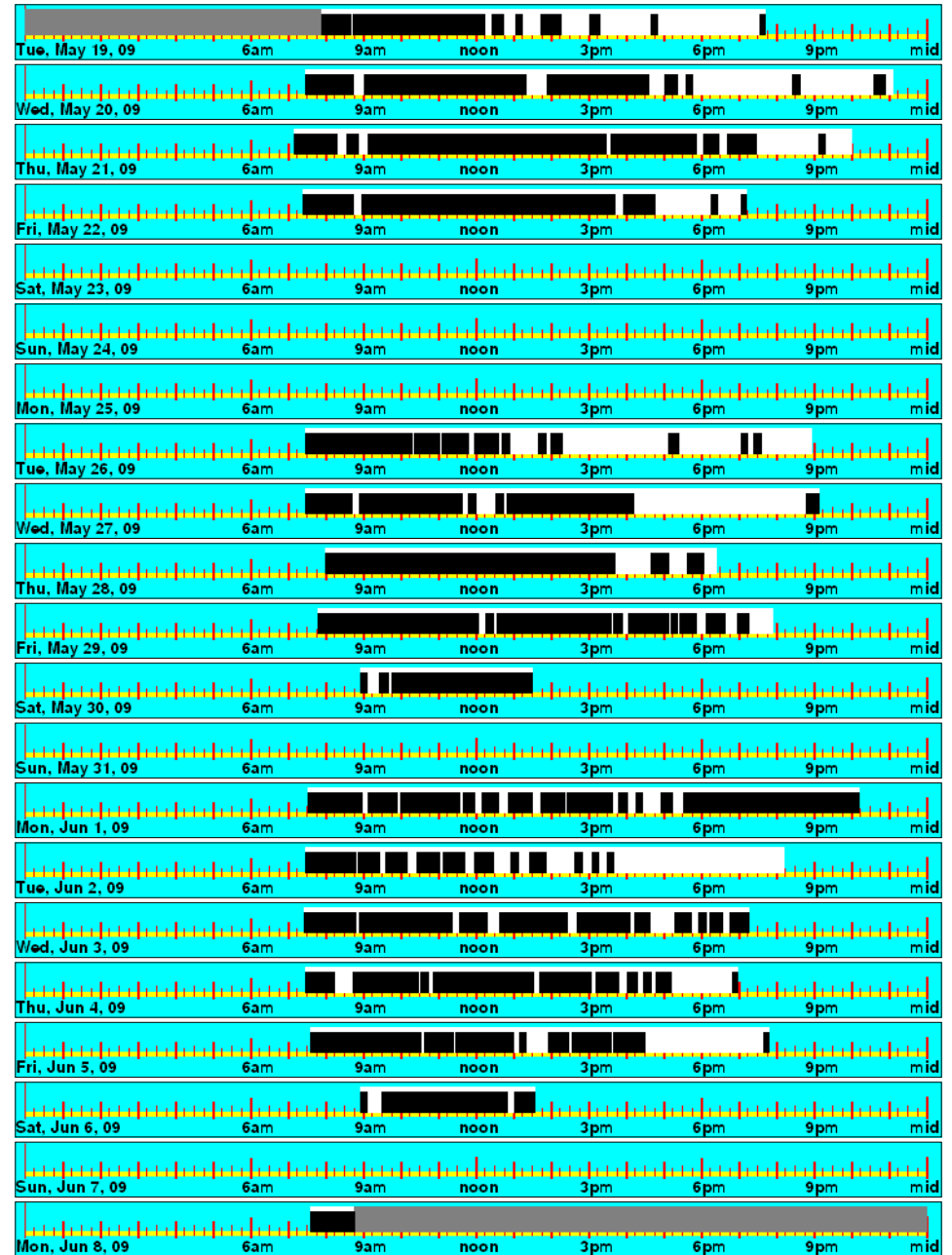
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	36.100	12.033	27.267	9.089
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	36.100	12.033	27.267	9.089

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	177.000	121.033	480.867	61.838	42.285	31.6%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	177.000	121.033	480.867	61.838	42.285	31.6%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	6.694	5.693	14.228	6.440	13.711	8.911	12.244	9.400	12.033	9.089	3.067	2.722
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	6.694	5.693	14.228	6.440	13.711	8.911	12.244	9.400	12.033	9.089	3.067	2.722

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	177.000	121.033	480.867	^ ^ ^ ^	61.838	42.285	31.6%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	177.000	121.033	480.867		61.838	42.285	31.6%



GYM - LOBBY

Area type: Open Space. Logger: 20838. Time delay 10 minutes. NORESCO, NEWTON - BIGELOW MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	63.550	24.000	51.383	19.405	33.533	12.664
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	63.550	24.000	51.383	19.405	33.533	12.664

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	38.317	12.772	26.367	8.789
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	38.317	12.772	26.367	8.789

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	13.083	4.361	10.333	3.444
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	13.083	4.361	10.333	3.444

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	55.167	24.000	19.200	8.353	14.433	6.279
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	55.167	24.000	19.200	8.353	14.433	6.279

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	33.833	11.278	23.767	7.922
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	33.833	11.278	23.767	7.922

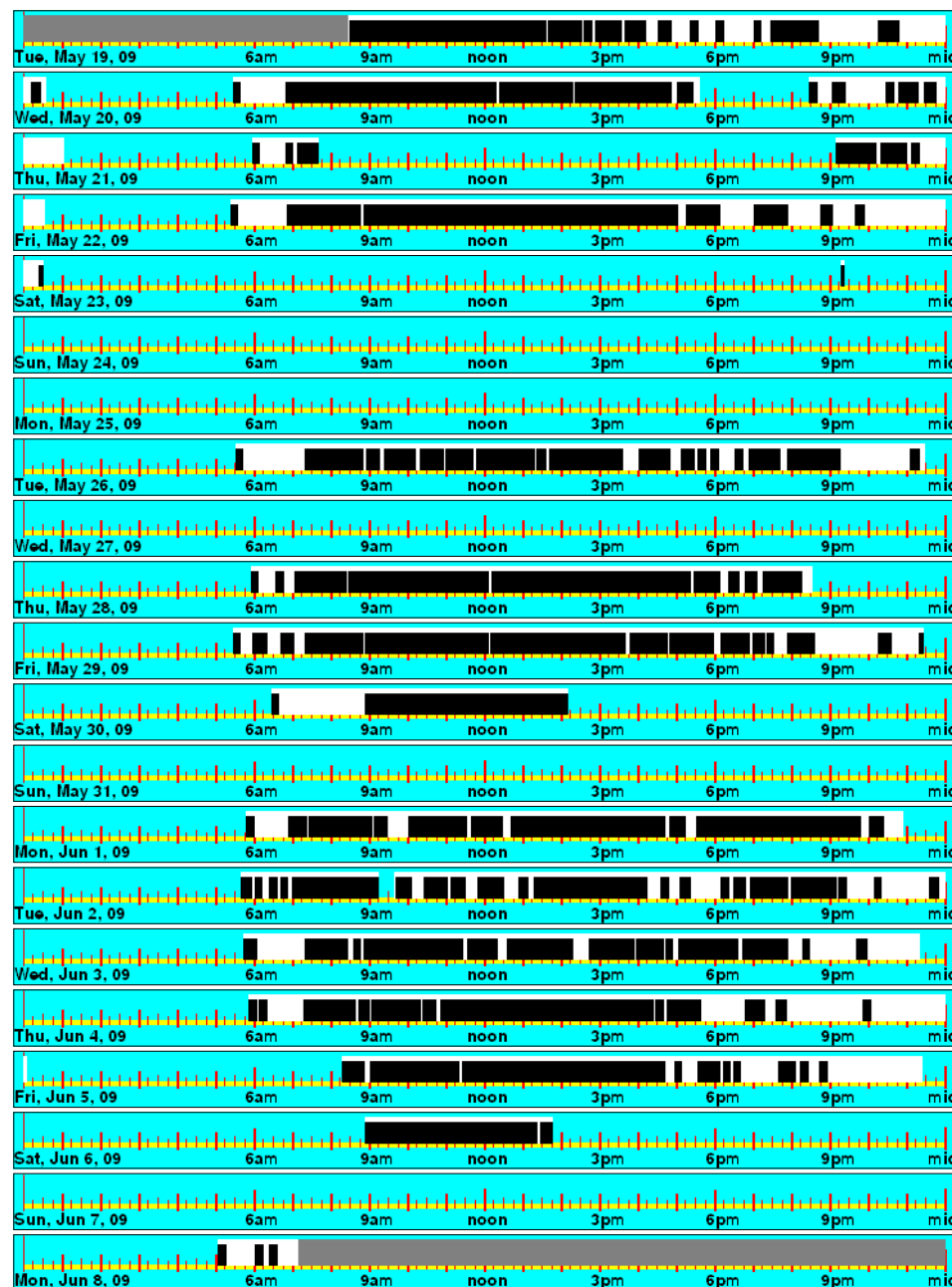
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	52.250	17.417	35.800	11.933
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	52.250	17.417	35.800	11.933

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	208.067	144.233	478.717	73.019	50.617	30.7%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	208.067	144.233	478.717	73.019	50.617	30.7%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	8.353	6.279	19.405	12.664	11.278	7.922	12.772	8.789	17.417	11.933	4.361	3.444
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	8.353	6.279	19.405	12.664	11.278	7.922	12.772	8.789	17.417	11.933	4.361	3.444

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	208.067	144.233	478.717	^ ^ ^ ^	73.019	50.617	30.7%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	208.067	144.233	478.717		73.019	50.617	30.7%



GYM - MAIN AREA

Area type: Gym. Logger: 24858. Time delay 10 minutes. NORESCO, NEWTON - BIGELOW MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	64.117	24.000	38.033	14.237	17.367	6.501
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	64.117	24.000	38.033	14.237	17.367	6.501

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	36.767	12.256	25.433	8.478
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	36.767	12.256	25.433	8.478

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	9.200	3.067	8.567	2.856
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	9.200	3.067	8.567	2.856

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	55.217	24.000	14.667	6.375	11.333	4.926
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	55.217	24.000	14.667	6.375	11.333	4.926

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	41.133	13.711	25.967	8.656
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	41.133	13.711	25.967	8.656

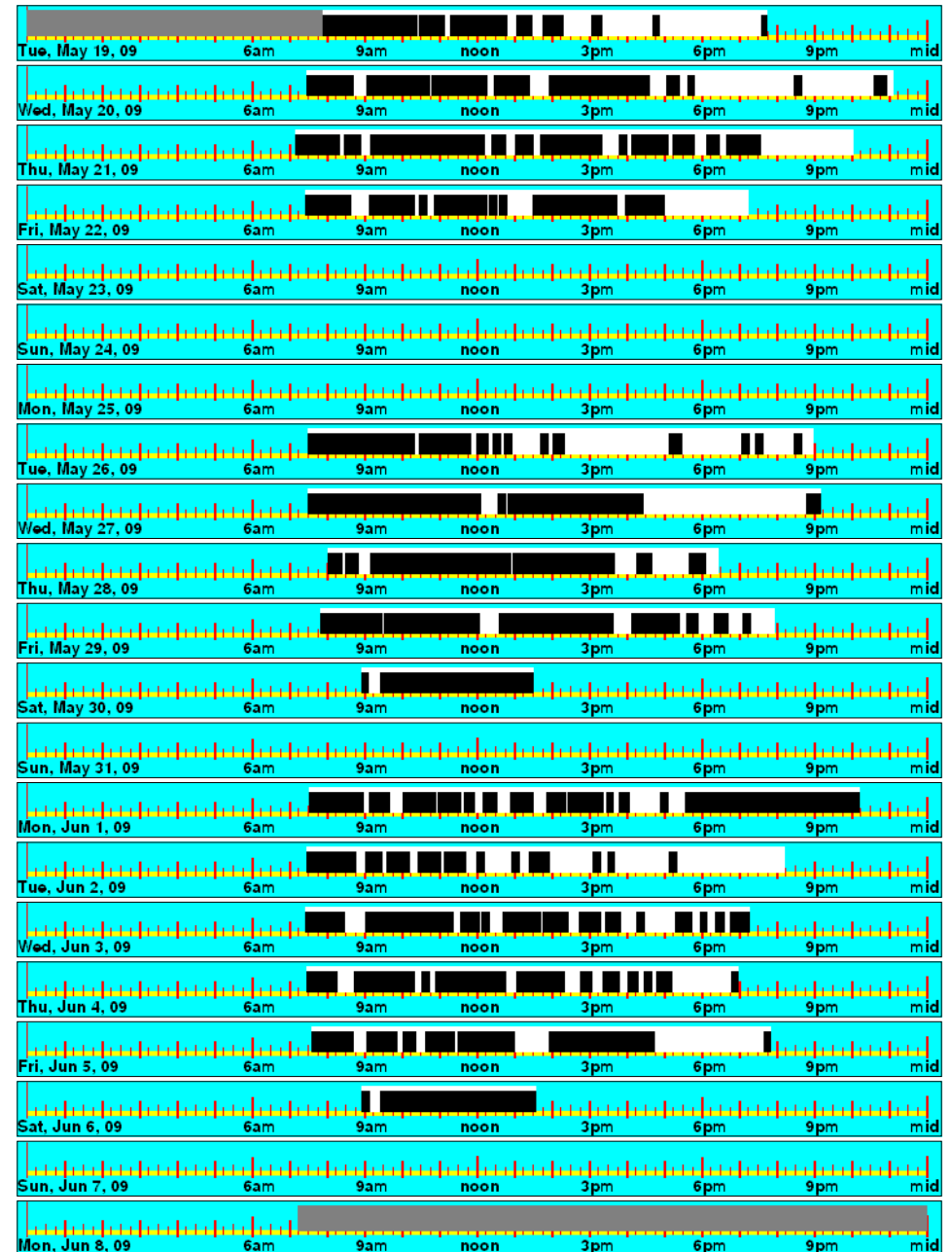
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	36.133	12.044	24.367	8.122
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	36.133	12.044	24.367	8.122

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	175.933	113.033	479.333	61.662	39.617	35.8%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	175.933	113.033	479.333	61.662	39.617	35.8%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	6.375	4.926	14.237	6.501	13.711	8.656	12.256	8.478	12.044	8.122	3.067	2.856
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	6.375	4.926	14.237	6.501	13.711	8.656	12.256	8.478	12.044	8.122	3.067	2.856

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	175.933	113.033	479.333	^ ^ ^ ^	61.662	39.617	35.8%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	175.933	113.033	479.333		61.662	39.617	35.8%



HALL BY G -03 AND G - 04

Area type: Hallway. Logger: 23705. Time delay 10 minutes. NORESCO, NEWTON - BIGELOW MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	62.417	24.000	40.767	15.675	24.867	9.562
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	62.417	24.000	40.767	15.675	24.867	9.562

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	48.200	16.067	28.000	9.333
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	48.200	16.067	28.000	9.333

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	7.967	2.656	5.200	1.733
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	7.967	2.656	5.200	1.733

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	55.700	24.000	18.400	7.928	9.967	4.294
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	55.700	24.000	18.400	7.928	9.967	4.294

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	42.167	14.056	27.667	9.222
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	42.167	14.056	27.667	9.222

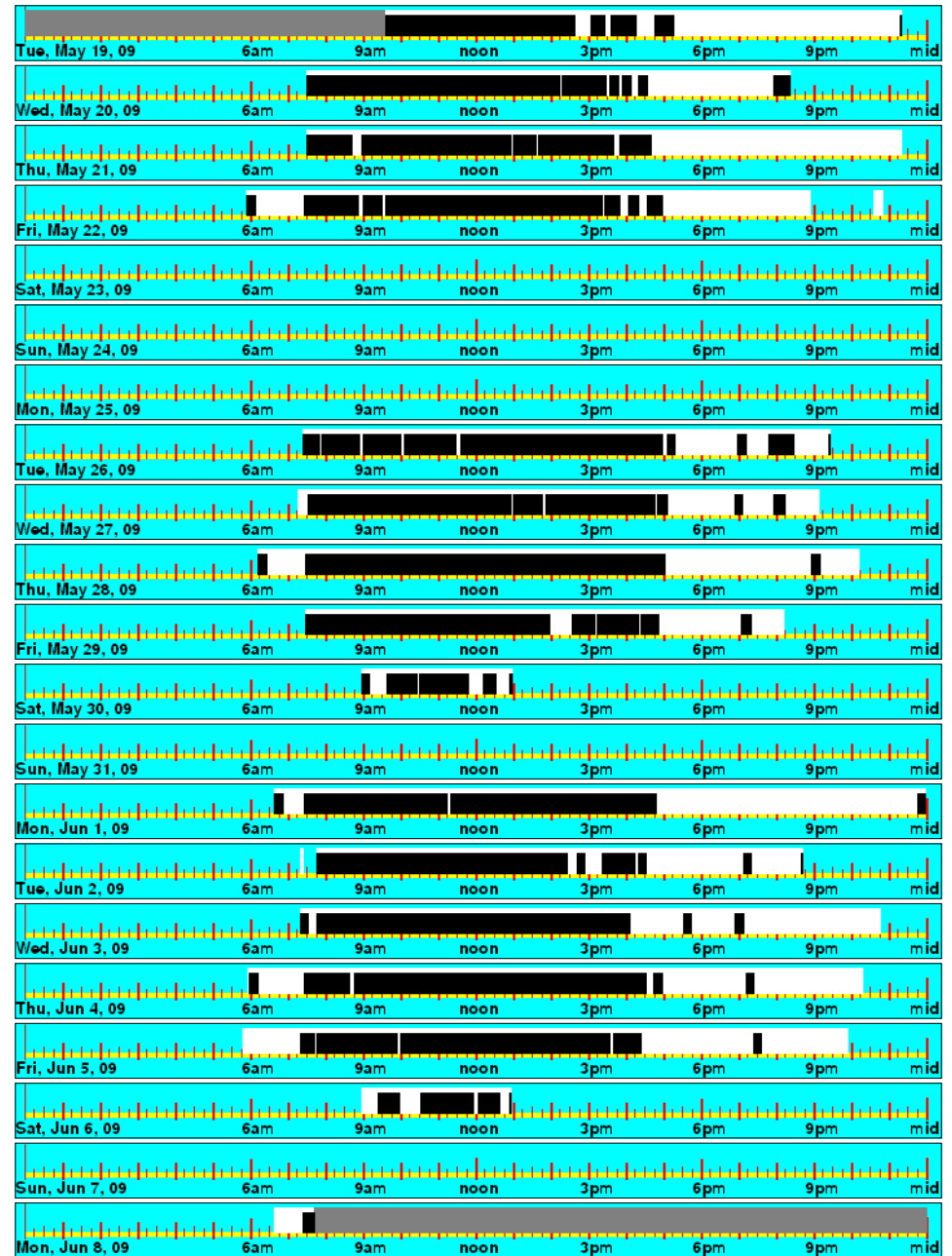
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	44.067	14.689	26.767	8.922
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	44.067	14.689	26.767	8.922

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	201.567	122.467	478.117	70.826	43.032	39.2%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	201.567	122.467	478.117	70.826	43.032	39.2%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	7.928	4.294	15.675	9.562	14.056	9.222	16.067	9.333	14.689	8.922	2.656	1.733
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	7.928	4.294	15.675	9.562	14.056	9.222	16.067	9.333	14.689	8.922	2.656	1.733

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	201.567	122.467	478.117	^ ^ ^ ^	70.826	43.032	39.2%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	201.567	122.467	478.117		70.826	43.032	39.2%



HALL BY LIBRARY - RM 104

Area type: Hallway. Logger: 24967. Time delay 10 minutes. NORESCO, NEWTON - BIGELOW MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	62.867	24.000	49.767	18.999	38.267	14.609
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	62.867	24.000	49.767	18.999	38.267	14.609

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	50.933	16.978	35.733	11.911
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	50.933	16.978	35.733	11.911

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	9.267	3.089	8.833	2.944
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	9.267	3.089	8.833	2.944

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	55.833	24.000	20.650	8.876	14.783	6.355
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	55.833	24.000	20.650	8.876	14.783	6.355

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	51.433	17.144	39.200	13.067
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	51.433	17.144	39.200	13.067

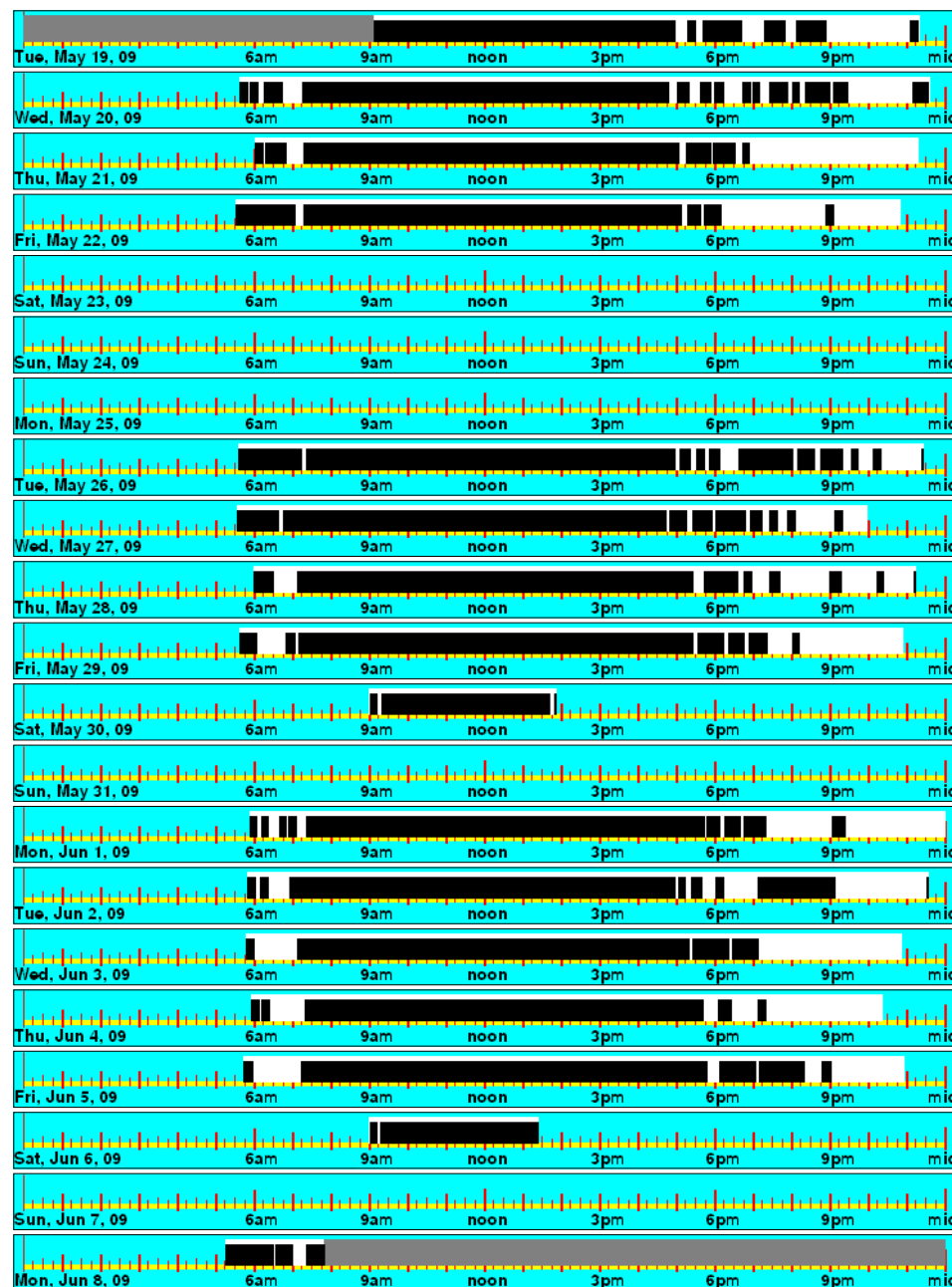
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	51.767	17.256	37.967	12.656
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	51.767	17.256	37.967	12.656

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	233.817	174.783	478.700	82.058	61.340	25.2%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	233.817	174.783	478.700	82.058	61.340	25.2%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	8.876	6.355	18.999	14.609	17.144	13.067	16.978	11.911	17.256	12.656	3.089	2.944
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	8.876	6.355	18.999	14.609	17.144	13.067	16.978	11.911	17.256	12.656	3.089	2.944

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	233.817	174.783	478.700	^ ^ ^ ^	82.058	61.340	25.2%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	233.817	174.783	478.700		82.058	61.340	25.2%



HALL BY MAIN OFFICE

Area type: Hallway. Logger: 20764. Time delay 10 minutes. NORESCO, NEWTON - BIGELOW MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normalized Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normalized Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	63.067	24.000	50.433	19.192	37.700	14.347
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	63.067	24.000	50.433	19.192	37.700	14.347

Thu	Total Log Time	Hours /Day	Logged Lites On	Normalized Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	51.067	17.022	35.733	11.911
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	51.067	17.022	35.733	11.911

Sat	Total Log Time	Hours /Day	Logged Lites On	Normalized Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	11.933	3.978	8.933	2.978
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	11.933	3.978	8.933	2.978

Mon	Total Log Time	Hours /Day	Logged Lites On	Normalized Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	56.017	24.000	20.933	8.969	14.633	6.270
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	56.017	24.000	20.933	8.969	14.633	6.270

Wed	Total Log Time	Hours /Day	Logged Lites On	Normalized Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	51.967	17.322	38.267	12.756
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	51.967	17.322	38.267	12.756

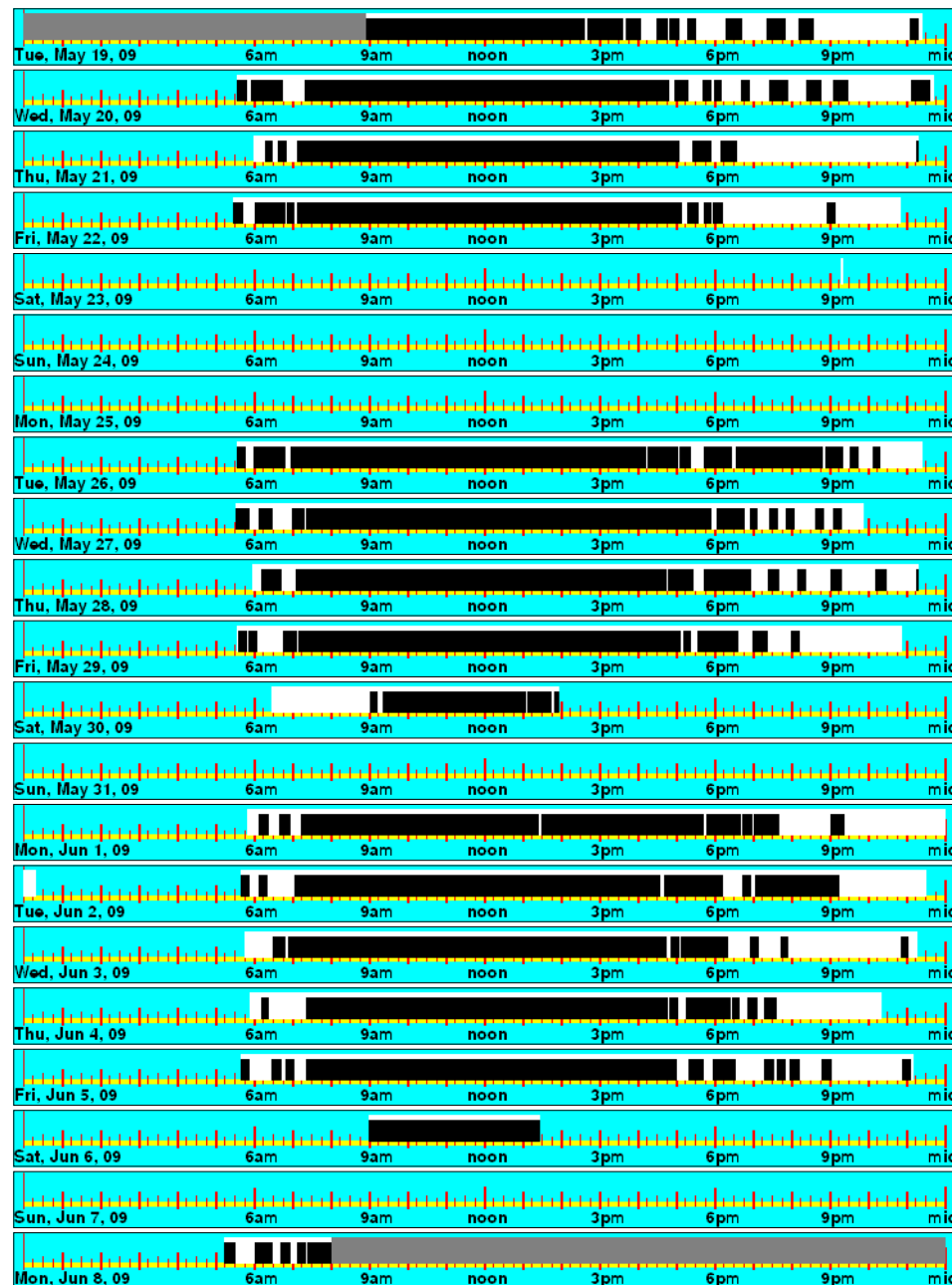
Fri	Total Log Time	Hours /Day	Logged Lites On	Normalized Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	52.167	17.389	36.733	12.244
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	52.167	17.389	36.733	12.244

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	238.500	172.000	479.083	83.635	60.315	27.9%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	238.500	172.000	479.083	83.635	60.315	27.9%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	8.969	6.270	19.192	14.347	17.322	12.756	17.022	11.911	17.389	12.244	3.978	2.978
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	8.969	6.270	19.192	14.347	17.322	12.756	17.022	11.911	17.389	12.244	3.978	2.978

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	238.500	172.000	479.083	^ ^ ^ ^	83.635	60.315	27.9%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	238.500	172.000	479.083		83.635	60.315	27.9%



HALL BY ROOM 212

Area type: Hallway. Logger: 23616. Time delay 10 minutes. NORESCO, NEWTON - BIGELOW MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	24.000	8.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	24.000	8.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	62.650	24.000	52.617	20.156	27.000	10.343
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	62.650	24.000	52.617	20.156	27.000	10.343

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	47.767	15.922	31.800	10.600
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	47.767	15.922	31.800	10.600

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	32.033	10.678	7.700	2.567
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	32.033	10.678	7.700	2.567

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	55.467	24.000	42.567	18.418	11.067	4.788
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	55.467	24.000	42.567	18.418	11.067	4.788

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	43.833	14.611	31.633	10.544
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	43.833	14.611	31.633	10.544

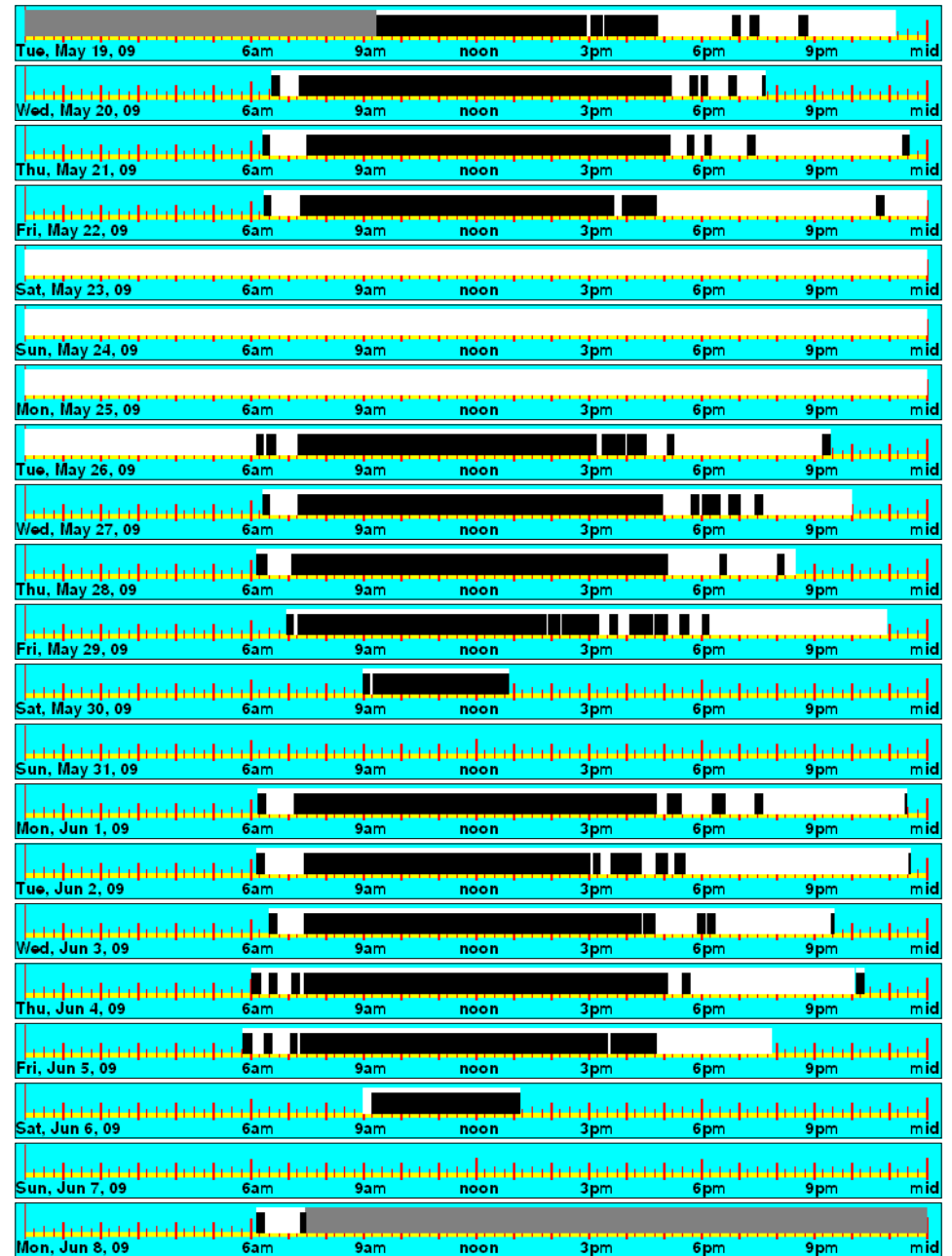
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	47.683	15.894	29.100	9.700
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	47.683	15.894	29.100	9.700

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	290.500	138.300	478.117	102.076	48.596	52.4%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	290.500	138.300	478.117	102.076	48.596	52.4%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	8.000	0.000	18.418	4.788	20.156	10.343	14.611	10.544	15.922	10.600	15.894	9.700	10.678	2.567
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	8.000	0.000	18.418	4.788	20.156	10.343	14.611	10.544	15.922	10.600	15.894	9.700	10.678	2.567

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	290.500	138.300	478.117	^ ^ ^ ^	102.076	48.596	52.4%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	290.500	138.300	478.117		102.076	48.596	52.4%



HANDICAP BATH - BY GYM

Area type: Restroom. Logger: 23085. Time delay 10 minutes. NORESKO, NEWTON - BIGELOW MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	62.733	24.000	36.433	13.938	7.267	2.780
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	62.733	24.000	36.433	13.938	7.267	2.780

	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	31.700	10.567	7.600	2.533
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	31.700	10.567	7.600	2.533

	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	4.367	1.456	3.067	1.022
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	4.367	1.456	3.067	1.022

	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	55.233	24.000	6.667	2.897	2.967	1.289
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	55.233	24.000	6.667	2.897	2.967	1.289

	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	18.933	6.311	4.800	1.600
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	18.933	6.311	4.800	1.600

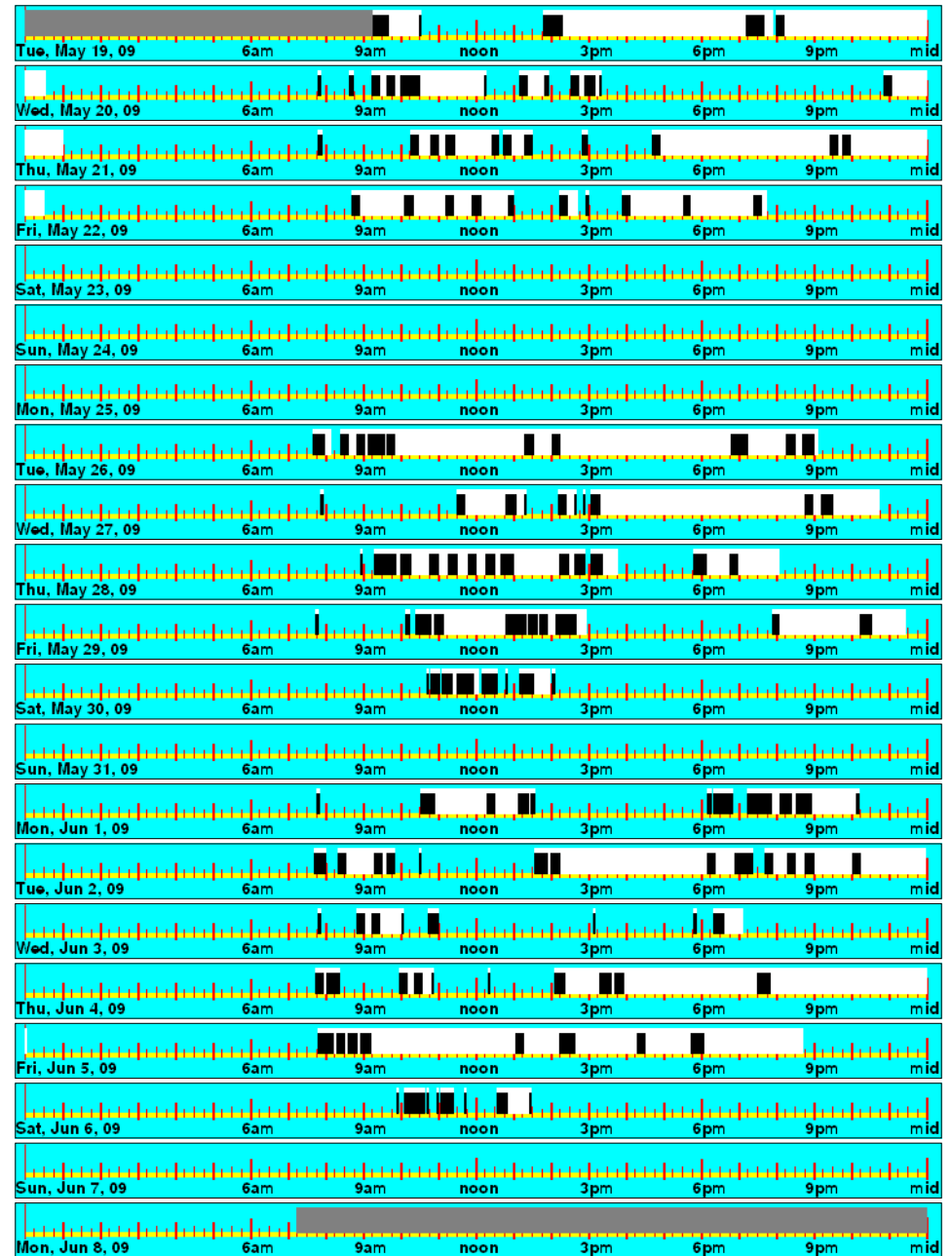
	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	30.300	10.100	6.767	2.256
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	30.300	10.100	6.767	2.256

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	128.400	32.467	477.967	45.131	11.412	74.7%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	128.400	32.467	477.967	45.131	11.412	74.7%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	2.897	1.289	13.938	2.780	6.311	1.600	10.567	2.533	10.100	2.256	1.456	1.022
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	2.897	1.289	13.938	2.780	6.311	1.600	10.567	2.533	10.100	2.256	1.456	1.022

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	128.400	32.467	477.967	^ ^ ^ ^	45.131	11.412	74.7%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	128.400	32.467	477.967		45.131	11.412	74.7%



LIBRARY

Area type: Open Space. Logger: 24079. Time delay 10 minutes. NORESCO, NEWTON - BIGELOW MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	63.817	24.000	29.733	11.182	24.767	9.314
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	63.817	24.000	29.733	11.182	24.767	9.314

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	26.933	8.978	26.633	8.878
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	26.933	8.978	26.633	8.878

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	55.933	24.000	10.467	4.491	8.533	3.662
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	55.933	24.000	10.467	4.491	8.533	3.662

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	34.567	11.522	28.133	9.378
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	34.567	11.522	28.133	9.378

Fri	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	27.400	9.133	22.100	7.367
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	27.400	9.133	22.100	7.367

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	129.100	110.167	479.750	45.209	38.578	14.7%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	129.100	110.167	479.750	45.209	38.578	14.7%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	4.491	3.662	11.182	9.314	11.522	9.378	8.978	8.878	9.133	7.367	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	4.491	3.662	11.182	9.314	11.522	9.378	8.978	8.878	9.133	7.367	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	129.100	110.167	479.750	^ ^ ^ ^	45.209	38.578	14.7%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	129.100	110.167	479.750		45.209	38.578	14.7%



MAIN OFFICE

Area type: Open Space. Logger: 24273. Time delay 10 minutes. NORESCO, NEWTON - BIGELOW MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	64.267	24.000	40.533	15.137	31.367	11.714
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	64.267	24.000	40.533	15.137	31.367	11.714

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	33.700	11.233	31.333	10.444
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	33.700	11.233	31.333	10.444

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	0.033	0.011	0.033	0.011
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.033	0.011	0.033	0.011

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	56.033	24.000	14.083	6.032	12.250	5.247
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	56.033	24.000	14.083	6.032	12.250	5.247

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	40.400	13.467	32.200	10.733
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	40.400	13.467	32.200	10.733

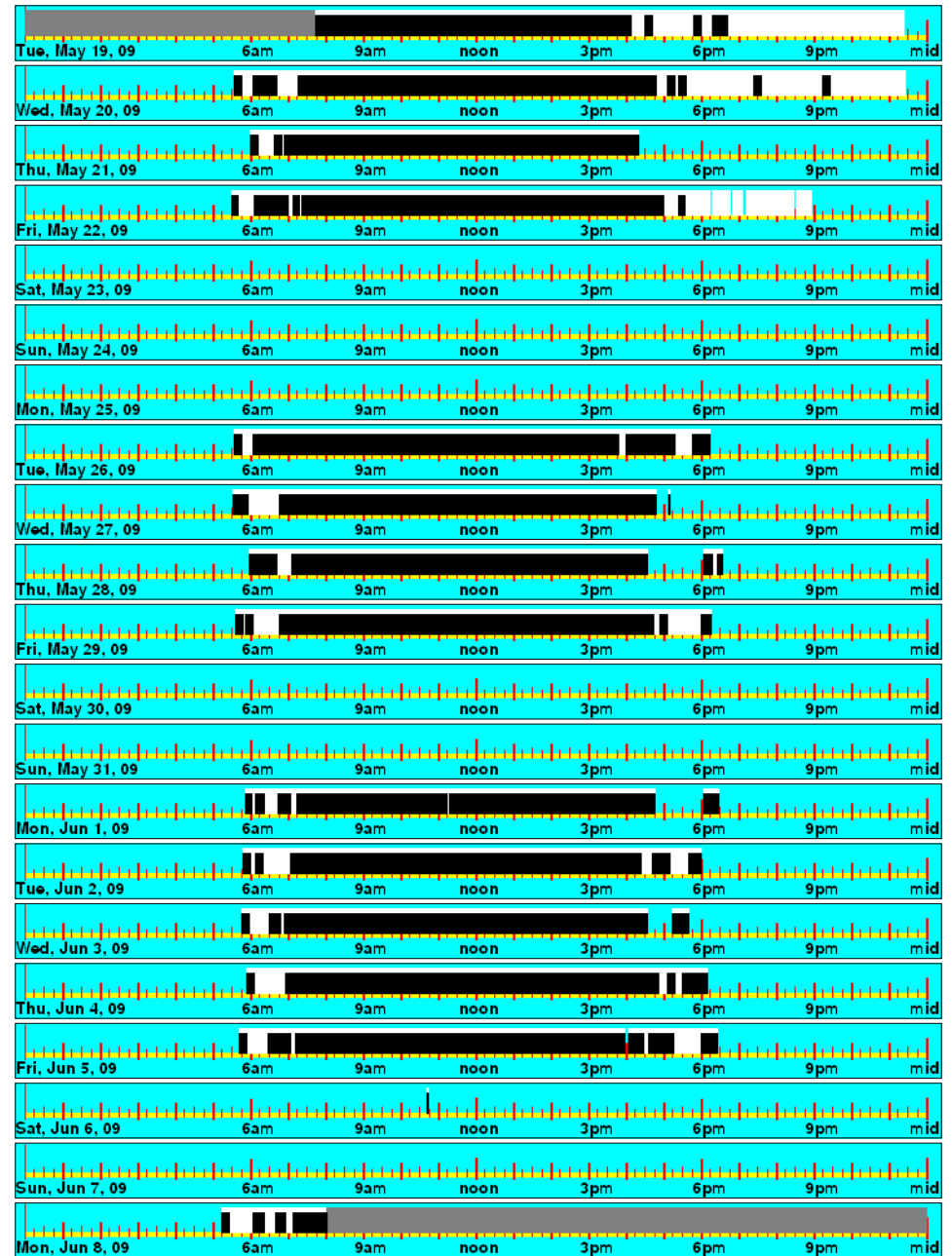
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	39.967	13.322	32.933	10.978
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	39.967	13.322	32.933	10.978

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	168.717	140.117	480.300	59.014	49.010	17.0%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	168.717	140.117	480.300	59.014	49.010	17.0%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	6.032	5.247	15.137	11.714	13.467	10.733	11.233	10.444	13.322	10.978	0.011	0.011
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	6.032	5.247	15.137	11.714	13.467	10.733	11.233	10.444	13.322	10.978	0.011	0.011

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	168.717	140.117	480.300	^ ^ ^ ^	59.014	49.010	17.0%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	168.717	140.117	480.300		59.014	49.010	17.0%



MAIN OFFICE - MAIL ROOM

Area type: Storage. Logger: 21805. Time delay 10 minutes. NORESCO, NEWTON - BIGELOW MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	63.000	24.000	41.500	15.810	27.900	10.629
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	63.000	24.000	41.500	15.810	27.900	10.629

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	35.967	11.989	30.400	10.133
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	35.967	11.989	30.400	10.133

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	1.733	0.578	0.567	0.189
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	1.733	0.578	0.567	0.189

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	56.117	24.000	14.600	6.244	11.333	4.847
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	56.117	24.000	14.600	6.244	11.333	4.847

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	39.167	13.056	31.333	10.444
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	39.167	13.056	31.333	10.444

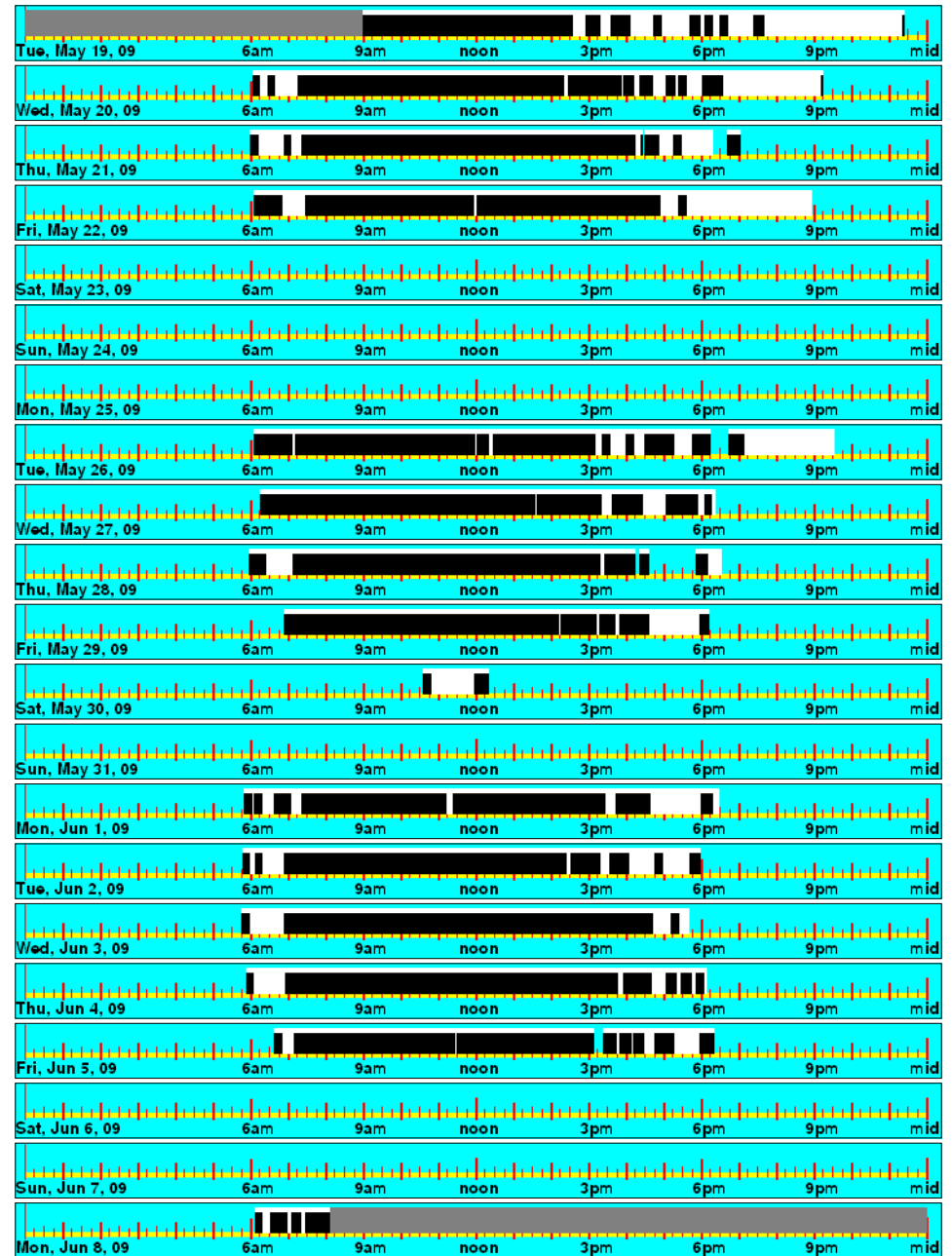
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	37.533	12.511	29.667	9.889
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	37.533	12.511	29.667	9.889

	Logged Totals			Normalized Totals		
Peak	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	170.500	131.200	479.117	59.785	46.005	23.0%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	170.500	131.200	479.117	59.785	46.005	23.0%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	6.244	4.847	15.810	10.629	13.056	10.444	11.989	10.133	12.511	9.889	0.578	0.189
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	6.244	4.847	15.810	10.629	13.056	10.444	11.989	10.133	12.511	9.889	0.578	0.189

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	170.500	131.200	479.117	^ ^ ^ ^	59.785	46.005	23.0%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	170.500	131.200	479.117		59.785	46.005	23.0%



MENS FACULTY - BY GYM

Area type: Restroom. Logger: 20876. Time delay 10 minutes. NORESKO, NEWTON - BIGELOW MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	24.000	8.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	24.000	8.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	62.367	24.000	29.150	11.218	9.467	3.643
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	62.367	24.000	29.150	11.218	9.467	3.643

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	18.183	6.061	6.767	2.256
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	18.183	6.061	6.767	2.256

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	26.267	8.756	1.633	0.544
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	26.267	8.756	1.633	0.544

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	55.333	24.000	28.483	12.354	2.450	1.063
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	55.333	24.000	28.483	12.354	2.450	1.063

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	18.350	6.117	5.650	1.883
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	18.350	6.117	5.650	1.883

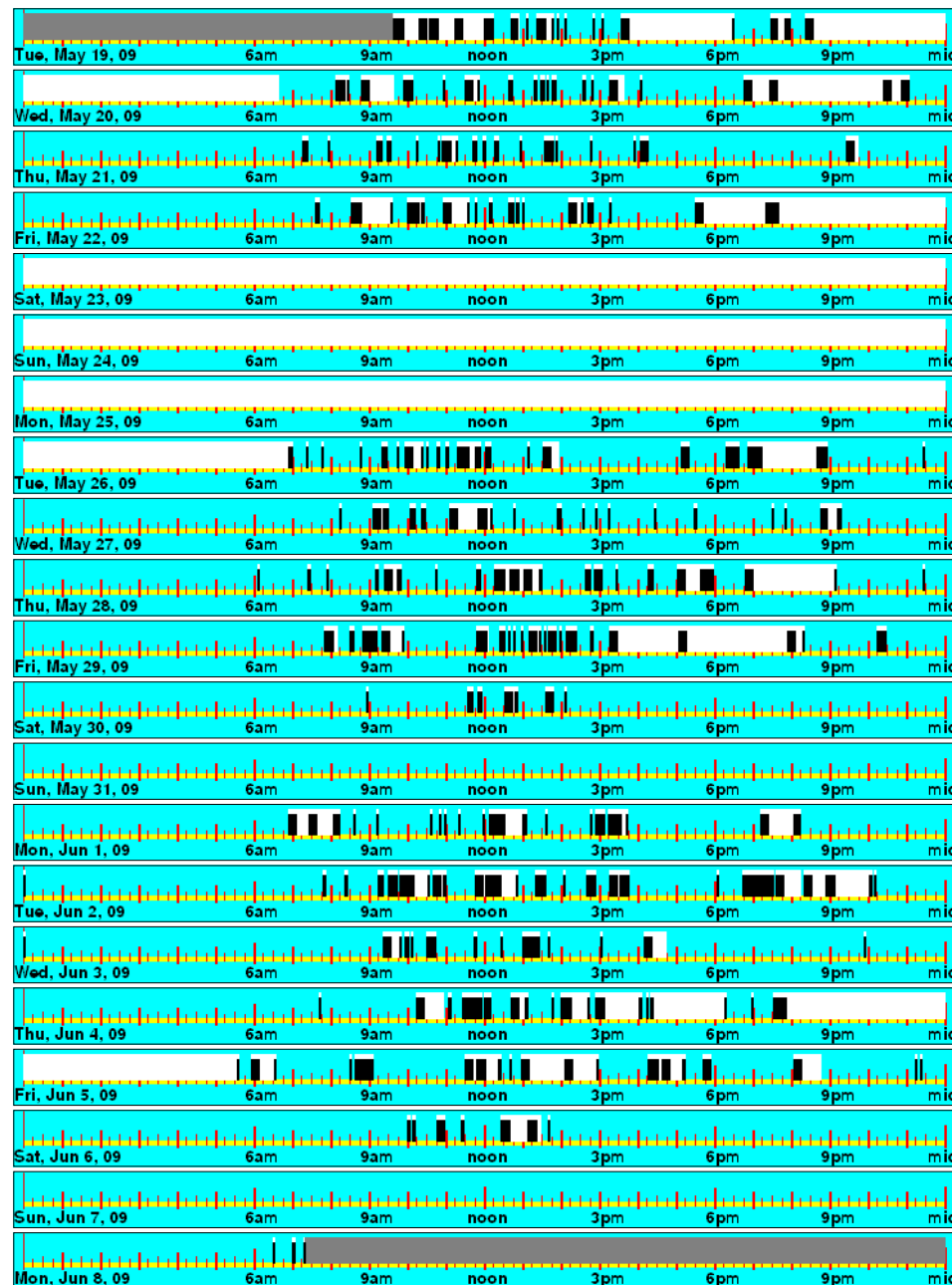
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	29.350	9.783	8.033	2.678
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	29.350	9.783	8.033	2.678

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	173.783	34.000	477.700	61.117	11.957	80.4%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	173.783	34.000	477.700	61.117	11.957	80.4%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	8.000	0.000	12.354	1.063	11.218	3.643	6.117	1.883	6.061	2.256	9.783	2.678	8.756	0.544
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	8.000	0.000	12.354	1.063	11.218	3.643	6.117	1.883	6.061	2.256	9.783	2.678	8.756	0.544

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	173.783	34.000	477.700	^ ^ ^ ^	61.117	11.957	80.4%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	173.783	34.000	477.700		61.117	11.957	80.4%



NURSE OFFICE - MAIN AREA

Area type: Private Office. Logger: 22647. Time delay 10 minutes. NORESO, NEWTON - BIGELOW MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	62.917	24.000	16.867	6.434	15.667	5.976
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	62.917	24.000	16.867	6.434	15.667	5.976

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	21.100	7.033	19.700	6.567
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	21.100	7.033	19.700	6.567

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	56.183	24.000	7.567	3.232	5.700	2.435
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	56.183	24.000	7.567	3.232	5.700	2.435

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	21.100	7.033	18.133	6.044
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	21.100	7.033	18.133	6.044

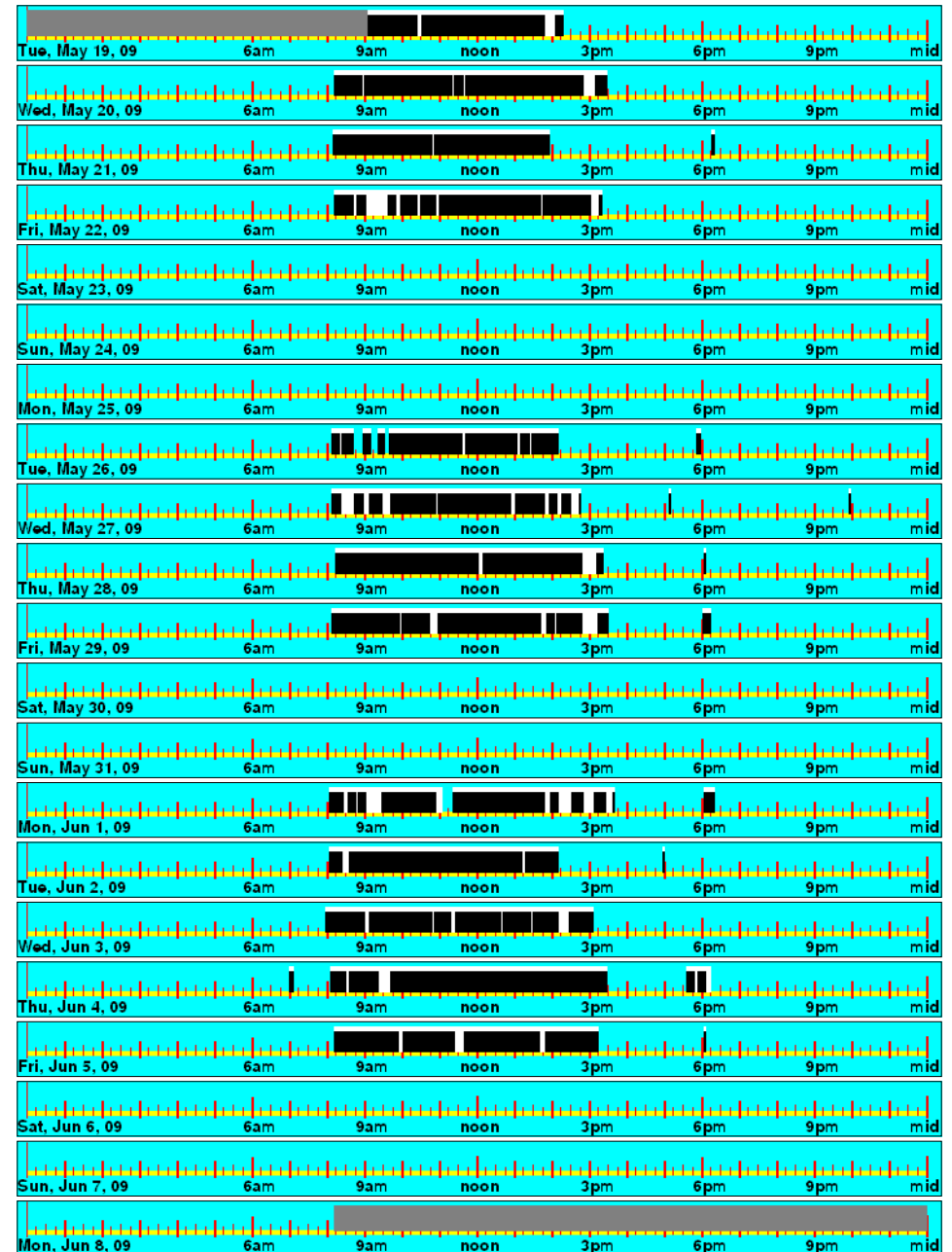
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	21.767	7.256	18.700	6.233
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	21.767	7.256	18.700	6.233

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	88.400	77.900	479.100	30.998	27.316	11.9%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	88.400	77.900	479.100	30.998	27.316	11.9%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	3.232	2.435	6.434	5.976	7.033	6.044	7.033	6.567	7.256	6.233	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	3.232	2.435	6.434	5.976	7.033	6.044	7.033	6.567	7.256	6.233	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	88.400	77.900	479.100	^ ^ ^ ^	30.998	27.316	11.9%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	88.400	77.900	479.100		30.998	27.316	11.9%



ROOM 103

Area type: Classroom. Logger: 23734. Time delay 10 minutes. NORESO, NEWTON - BIGELOW MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	63.783	24.000	37.300	14.035	34.467	12.969
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	63.783	24.000	37.300	14.035	34.467	12.969

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	24.333	8.111	23.967	7.989
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	24.333	8.111	23.967	7.989

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	55.883	24.000	11.017	4.731	10.650	4.574
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	55.883	24.000	11.017	4.731	10.650	4.574

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	23.233	7.744	23.200	7.733
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	23.233	7.744	23.200	7.733

Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	24.500	8.167	22.167	7.389
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	24.500	8.167	22.167	7.389

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	120.383	114.450	479.667	42.163	40.085	4.9%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	120.383	114.450	479.667	42.163	40.085	4.9%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	4.731	4.574	14.035	12.969	7.744	7.733	8.111	7.989	8.167	7.389	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	4.731	4.574	14.035	12.969	7.744	7.733	8.111	7.989	8.167	7.389	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	120.383	114.450	479.667	^ ^ ^ ^	42.163	40.085	4.9%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	120.383	114.450	479.667		42.163	40.085	4.9%



ROOM 114

Area type: Classroom. Logger: 23174. Time delay 10 minutes. NORESKO, NEWTON - BIGELOW MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	62.783	24.000	25.733	9.837	23.167	8.856
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	62.783	24.000	25.733	9.837	23.167	8.856

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	28.067	9.356	26.600	8.867
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	28.067	9.356	26.600	8.867

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	56.533	24.000	12.567	5.335	11.833	5.024
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	56.533	24.000	12.567	5.335	11.833	5.024

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	30.167	10.056	28.533	9.511
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	30.167	10.056	28.533	9.511

Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	27.100	9.033	25.067	8.356
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	27.100	9.033	25.067	8.356

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	123.633	115.200	479.317	43.333	40.377	6.8%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	123.633	115.200	479.317	43.333	40.377	6.8%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	5.335	5.024	9.837	8.856	10.056	9.511	9.356	8.867	9.033	8.356	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	5.335	5.024	9.837	8.856	10.056	9.511	9.356	8.867	9.033	8.356	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	123.633	115.200	479.317	^ ^ ^ ^	43.333	40.377	6.8%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	123.633	115.200	479.317		43.333	40.377	6.8%



ROOM 118 - FACULTY LOUNGE

Area type: Open Space. Logger: 24430. Time delay 10 minutes. NORESCO, NEWTON - BIGELOW MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	63.583	24.000	46.717	17.634	33.000	12.456
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	63.583	24.000	46.717	17.634	33.000	12.456

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	42.783	14.261	30.633	10.211
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	42.783	14.261	30.633	10.211

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	9.700	3.233	9.600	3.200
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	9.700	3.233	9.600	3.200

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	56.433	24.000	19.133	8.137	13.600	5.784
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	56.433	24.000	19.133	8.137	13.600	5.784

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	41.300	13.767	32.733	10.911
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	41.300	13.767	32.733	10.911

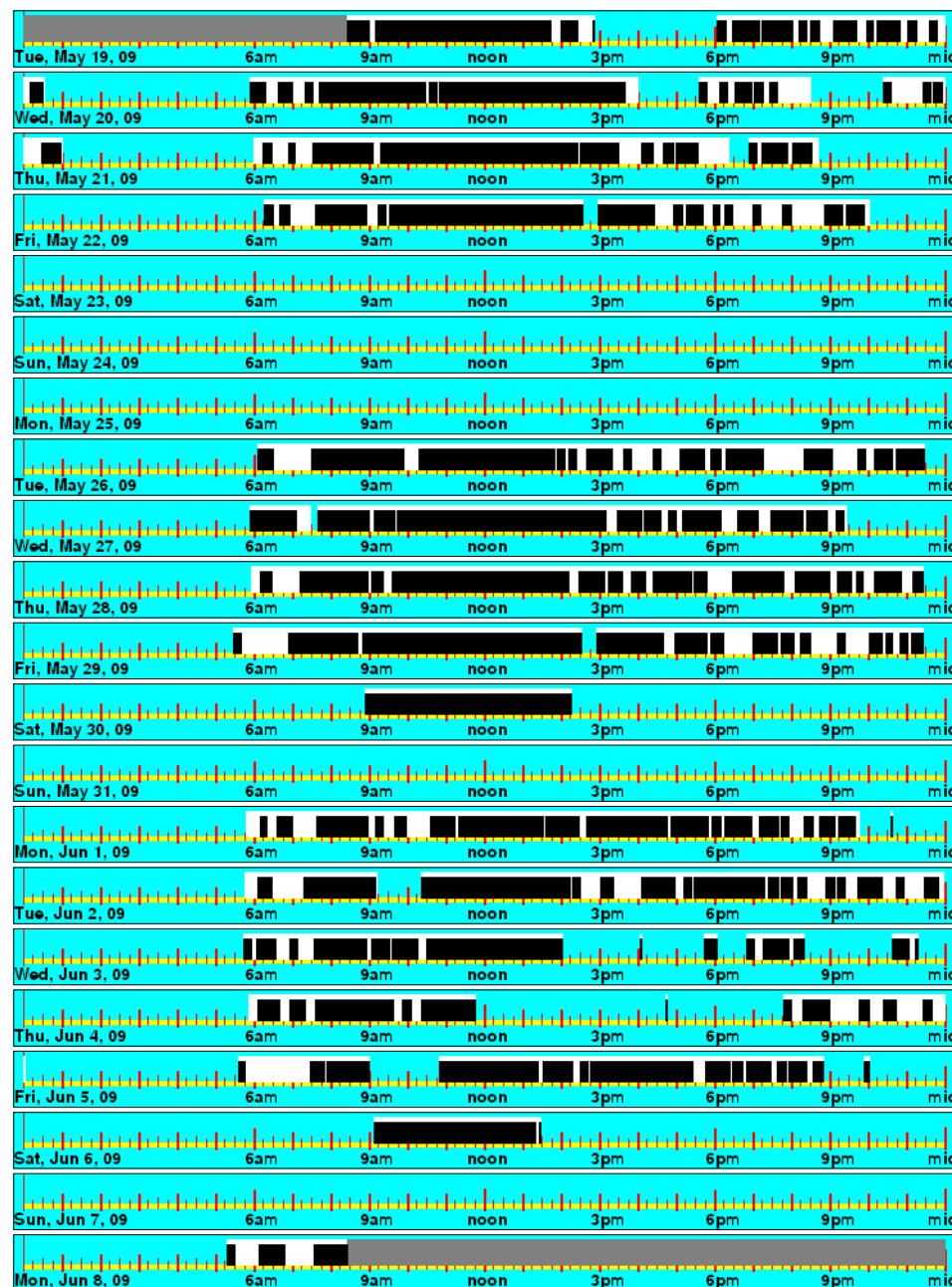
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	46.500	15.500	34.233	11.411
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	46.500	15.500	34.233	11.411

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	206.133	153.800	480.017	72.144	53.828	25.4%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	206.133	153.800	480.017	72.144	53.828	25.4%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	8.137	5.784	17.634	12.456	13.767	10.911	14.261	10.211	15.500	11.411	3.233	3.200
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	8.137	5.784	17.634	12.456	13.767	10.911	14.261	10.211	15.500	11.411	3.233	3.200

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	206.133	153.800	480.017	^ ^ ^ ^	72.144	53.828	25.4%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	206.133	153.800	480.017		72.144	53.828	25.4%



ROOM 118A

Area type: Meeting Rooms. Logger: 24226. Time delay 10 minutes. NORESKO, NEWTON - BIGELOW MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	62.350	24.000	17.233	6.634	16.233	6.249
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	62.350	24.000	17.233	6.634	16.233	6.249

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	29.050	9.683	15.100	5.033
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	29.050	9.683	15.100	5.033

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	56.400	24.000	8.767	3.730	8.267	3.518
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	56.400	24.000	8.767	3.730	8.267	3.518

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	17.333	5.778	17.167	5.722
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	17.333	5.778	17.167	5.722

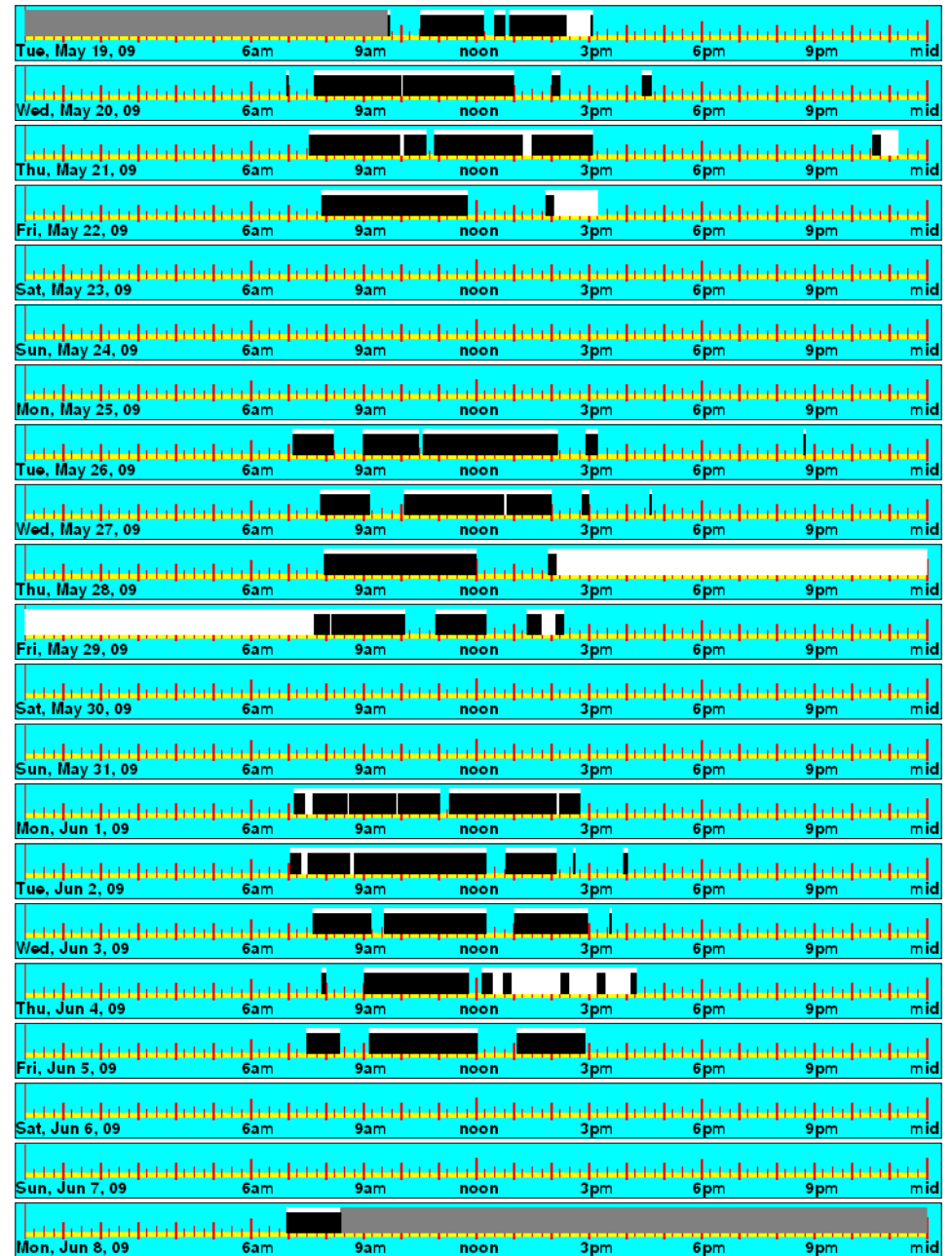
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	23.150	7.717	13.767	4.589
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	23.150	7.717	13.767	4.589

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	95.533	70.533	478.750	33.524	24.751	26.2%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	95.533	70.533	478.750	33.524	24.751	26.2%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	3.730	3.518	6.634	6.249	5.778	5.722	9.683	5.033	7.717	4.589	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	3.730	3.518	6.634	6.249	5.778	5.722	9.683	5.033	7.717	4.589	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	95.533	70.533	478.750	^ ^ ^ ^	33.524	24.751	26.2%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	95.533	70.533	478.750		33.524	24.751	26.2%



ROOM 205

Area type: Classroom. Logger: 24345. Time delay 10 minutes. NORESO, NEWTON - BIGELOW MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	62.583	24.000	15.700	6.021	14.900	5.714
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	62.583	24.000	15.700	6.021	14.900	5.714

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	17.700	5.900	17.033	5.678
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	17.700	5.900	17.033	5.678

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	60.533	24.000	6.133	2.432	6.133	2.432
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	60.533	24.000	6.133	2.432	6.133	2.432

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	6.133	3.067	5.667	2.833
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	6.133	3.067	5.667	2.833

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	18.500	6.167	16.933	5.644
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	18.500	6.167	16.933	5.644

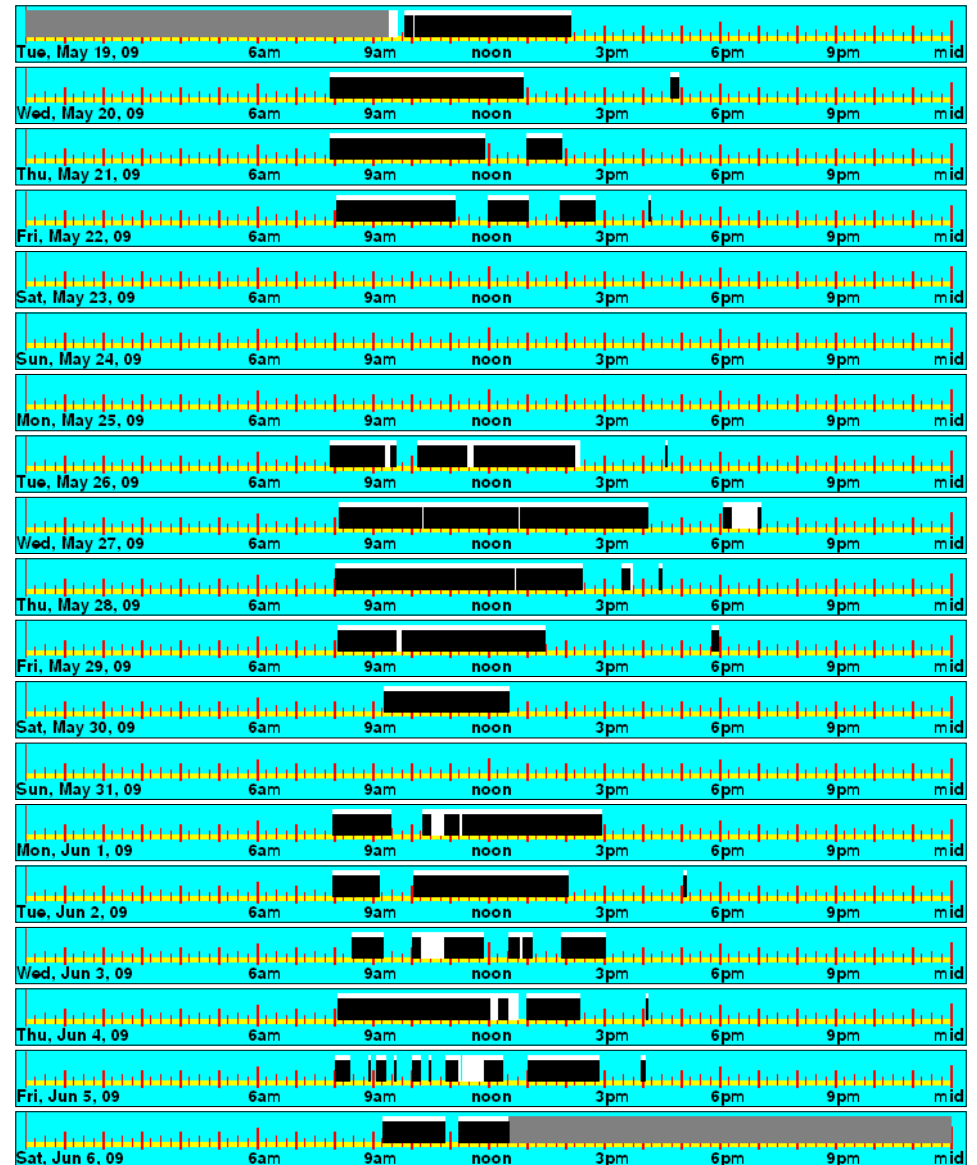
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	14.800	4.933	13.967	4.656
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	14.800	4.933	13.967	4.656

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	78.967	74.633	435.117	30.489	28.816	5.5%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	78.967	74.633	435.117	30.489	28.816	5.5%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	3.067	2.833	6.021	5.714	6.167	5.644	5.900	5.678	4.933	4.656	2.432	2.432
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	3.067	2.833	6.021	5.714	6.167	5.644	5.900	5.678	4.933	4.656	2.432	2.432

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	78.967	74.633	435.117	^ ^ ^ ^	30.489	28.816	5.5%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	78.967	74.633	435.117		30.489	28.816	5.5%



ROOM 206

Area type: Classroom. Logger: 20775. Time delay 10 minutes. NORESKO, NEWTON - BIGELOW MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	62.567	24.000	20.933	8.030	17.233	6.611
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	62.567	24.000	20.933	8.030	17.233	6.611

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	20.500	6.833	16.400	5.467
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	20.500	6.833	16.400	5.467

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	6.067	2.022	6.067	2.022
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	6.067	2.022	6.067	2.022

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	55.600	24.000	9.200	3.971	7.267	3.137
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	55.600	24.000	9.200	3.971	7.267	3.137

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	20.800	6.933	17.900	5.967
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	20.800	6.933	17.900	5.967

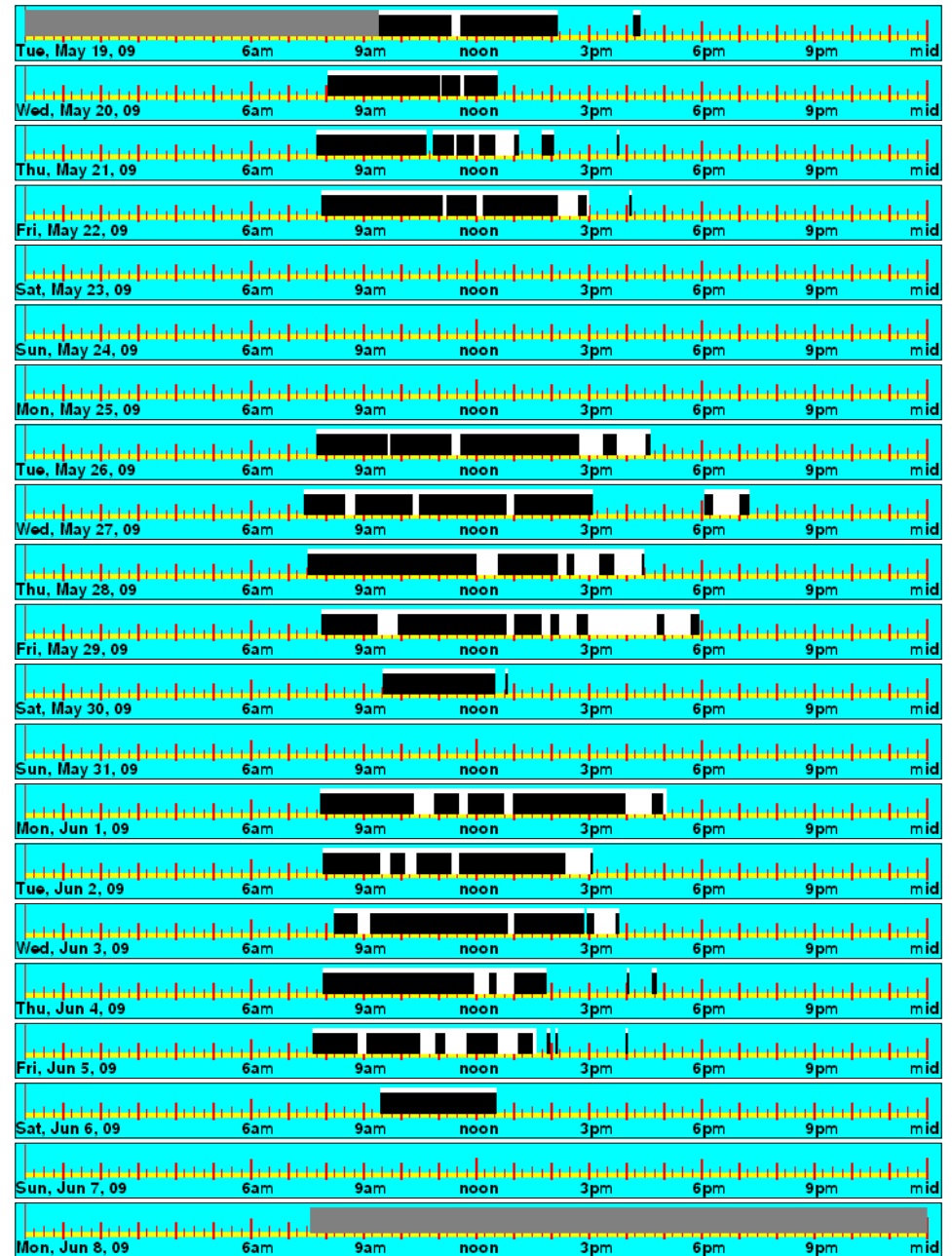
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	23.233	7.744	16.100	5.367
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	23.233	7.744	16.100	5.367

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	100.733	80.967	478.167	35.392	28.447	19.6%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	100.733	80.967	478.167	35.392	28.447	19.6%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	3.971	3.137	8.030	6.611	6.933	5.967	6.833	5.467	7.744	5.367	2.022	2.022
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	3.971	3.137	8.030	6.611	6.933	5.967	6.833	5.467	7.744	5.367	2.022	2.022

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	100.733	80.967	478.167	^ ^ ^ ^	35.392	28.447	19.6%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	100.733	80.967	478.167		35.392	28.447	19.6%



ROOM 208

Area type: Classroom. Logger: 21580. Time delay 10 minutes. NORESKO, NEWTON - BIGELOW MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	62.617	24.000	24.167	9.263	19.300	7.397
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	62.617	24.000	24.167	9.263	19.300	7.397

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	26.833	8.944	22.733	7.578
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	26.833	8.944	22.733	7.578

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	6.900	2.300	6.767	2.256
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	6.900	2.300	6.767	2.256

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	55.533	24.000	11.133	4.812	9.667	4.178
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	55.533	24.000	11.133	4.812	9.667	4.178

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	26.933	8.978	21.500	7.167
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	26.933	8.978	21.500	7.167

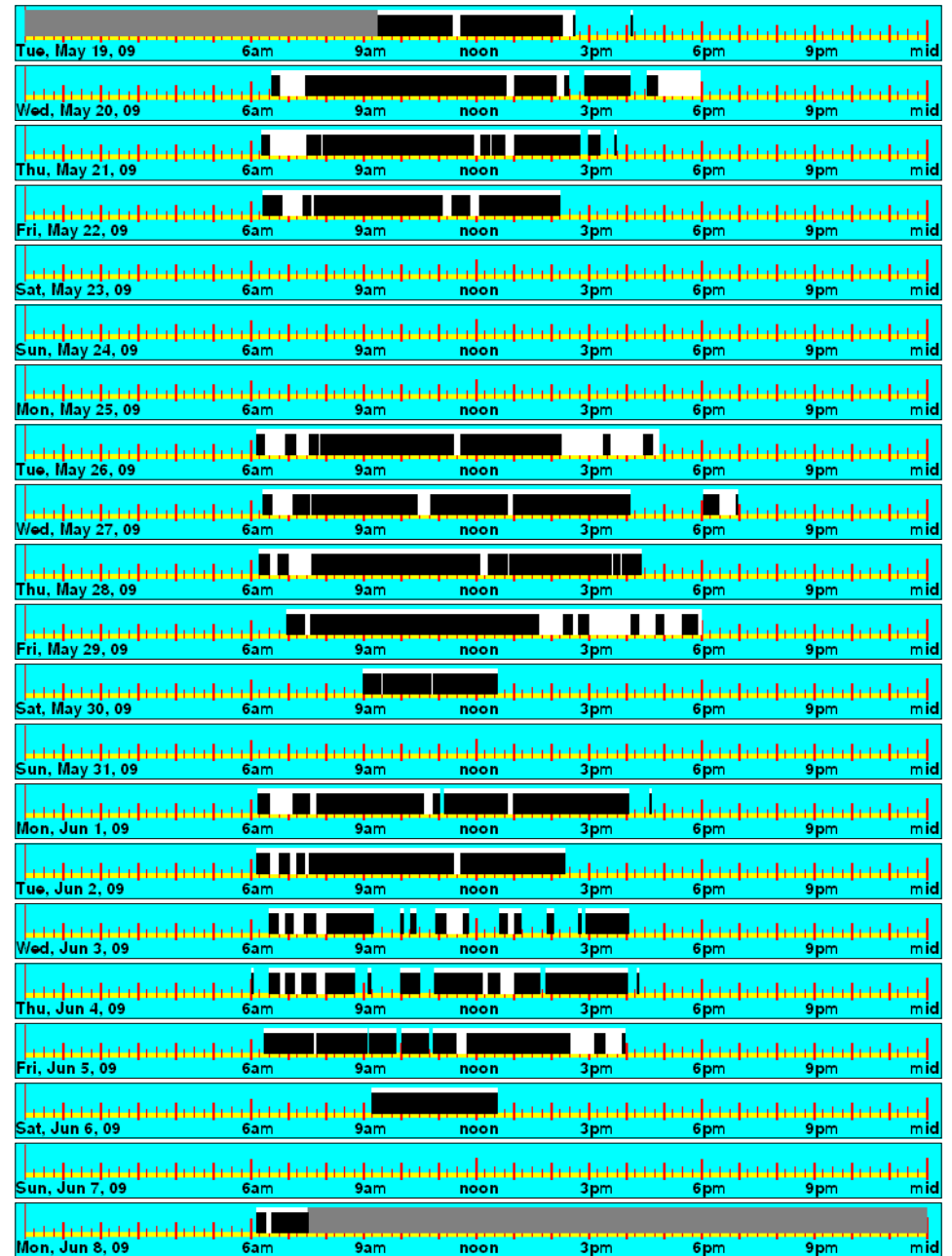
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	28.133	9.378	22.033	7.344
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	28.133	9.378	22.033	7.344

	Logged Totals			Normalized Totals		
Peak	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	124.100	102.000	478.150	43.603	35.838	17.8%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	124.100	102.000	478.150	43.603	35.838	17.8%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	4.812	4.178	9.263	7.397	8.978	7.167	8.944	7.578	9.378	7.344	2.300	2.256
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	4.812	4.178	9.263	7.397	8.978	7.167	8.944	7.578	9.378	7.344	2.300	2.256

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	124.100	102.000	478.150	^ ^ ^ ^	43.603	35.838	17.8%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	124.100	102.000	478.150		43.603	35.838	17.8%



ROOM 211

Area type: Classroom. Logger: 20794. Time delay 10 minutes. NORESO, NEWTON - BIGELOW MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	1.333	0.444	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	1.333	0.444	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	63.883	24.000	25.200	9.467	16.433	6.174
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	63.883	24.000	25.200	9.467	16.433	6.174

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	24.500	8.167	24.400	8.133
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	24.500	8.167	24.400	8.133

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	6.667	2.222	6.367	2.122
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	6.667	2.222	6.367	2.122

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	56.583	24.000	28.800	12.216	4.800	2.036
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	56.583	24.000	28.800	12.216	4.800	2.036

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	28.233	9.411	23.567	7.856
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	28.233	9.411	23.567	7.856

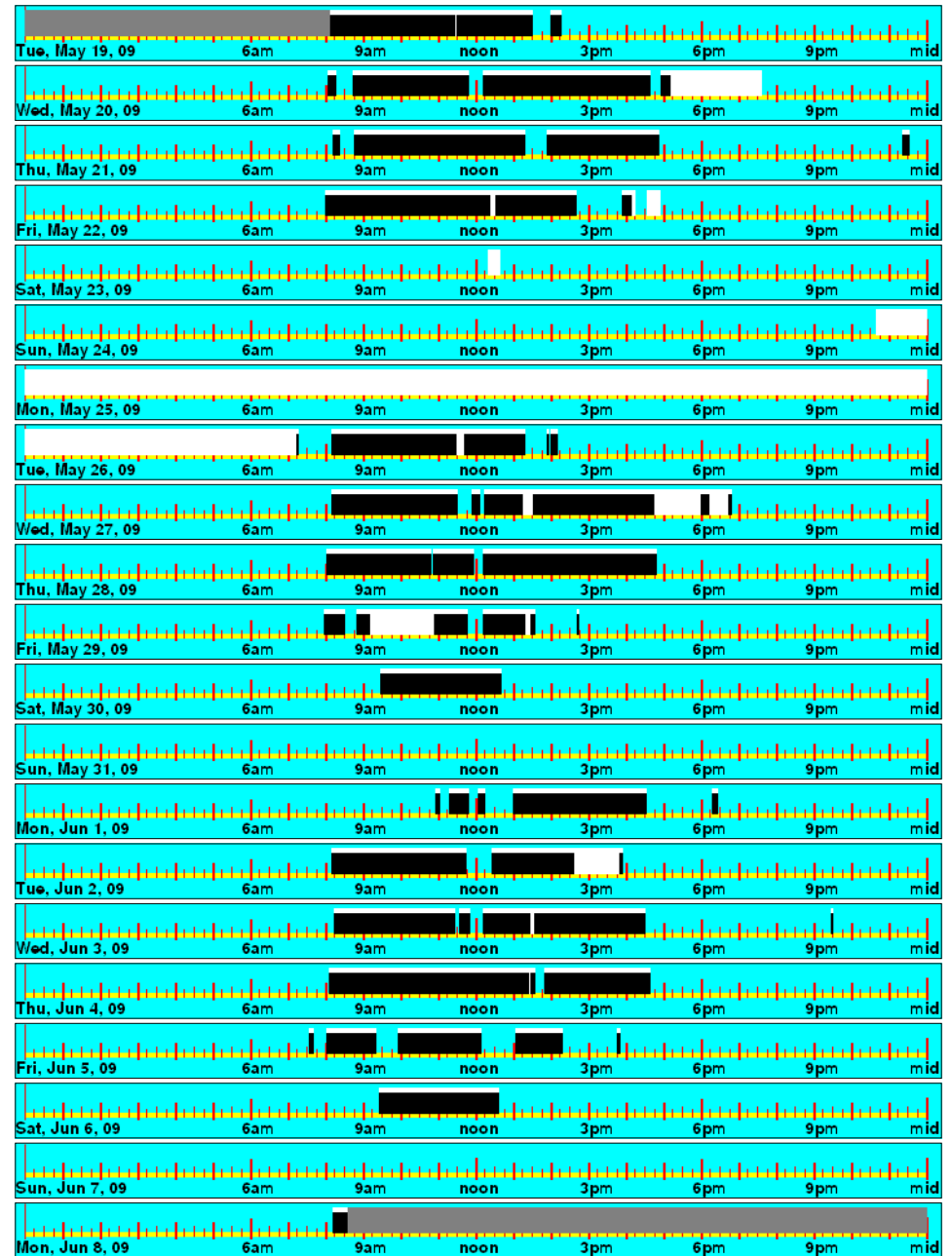
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	17.117	5.706	14.617	4.872
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	17.117	5.706	14.617	4.872

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	131.850	90.183	480.467	46.103	31.534	31.6%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	131.850	90.183	480.467	46.103	31.534	31.6%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.444	0.000	12.216	2.036	9.467	6.174	9.411	7.856	8.167	8.133	5.706	4.872	2.222	2.122
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.444	0.000	12.216	2.036	9.467	6.174	9.411	7.856	8.167	8.133	5.706	4.872	2.222	2.122

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	131.850	90.183	480.467	^ ^ ^ ^	46.103	31.534	31.6%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	131.850	90.183	480.467		46.103	31.534	31.6%



ROOM 216

Area type: Classroom. Logger: 21783. Time delay 10 minutes. NORESKO, NEWTON - BIGELOW MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	63.900	24.000	19.800	7.437	17.067	6.410
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	63.900	24.000	19.800	7.437	17.067	6.410

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	24.567	8.189	19.233	6.411
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	24.567	8.189	19.233	6.411

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	56.633	24.000	4.600	1.949	4.233	1.794
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	56.633	24.000	4.600	1.949	4.233	1.794

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	24.000	8.000	21.467	7.156
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	24.000	8.000	21.467	7.156

Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	24.967	8.322	19.200	6.400
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	24.967	8.322	19.200	6.400

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	97.933	81.200	480.533	34.239	28.388	17.1%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	97.933	81.200	480.533	34.239	28.388	17.1%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	1.949	1.794	7.437	6.410	8.000	7.156	8.189	6.411	8.322	6.400	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	1.949	1.794	7.437	6.410	8.000	7.156	8.189	6.411	8.322	6.400	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	97.933	81.200	480.533	^ ^ ^ ^	34.239	28.388	17.1%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	97.933	81.200	480.533		34.239	28.388	17.1%



ROOM 217

Area type: Classroom. Logger: 22959. Time delay 10 minutes. NORESKO, NEWTON - BIGELOW MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	63.950	24.000	22.433	8.419	20.633	7.744
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	63.950	24.000	22.433	8.419	20.633	7.744

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	20.433	6.811	19.733	6.578
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	20.433	6.811	19.733	6.578

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	56.667	24.000	5.683	2.407	5.350	2.266
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	56.667	24.000	5.683	2.407	5.350	2.266

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	25.267	8.422	23.367	7.789
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	25.267	8.422	23.367	7.789

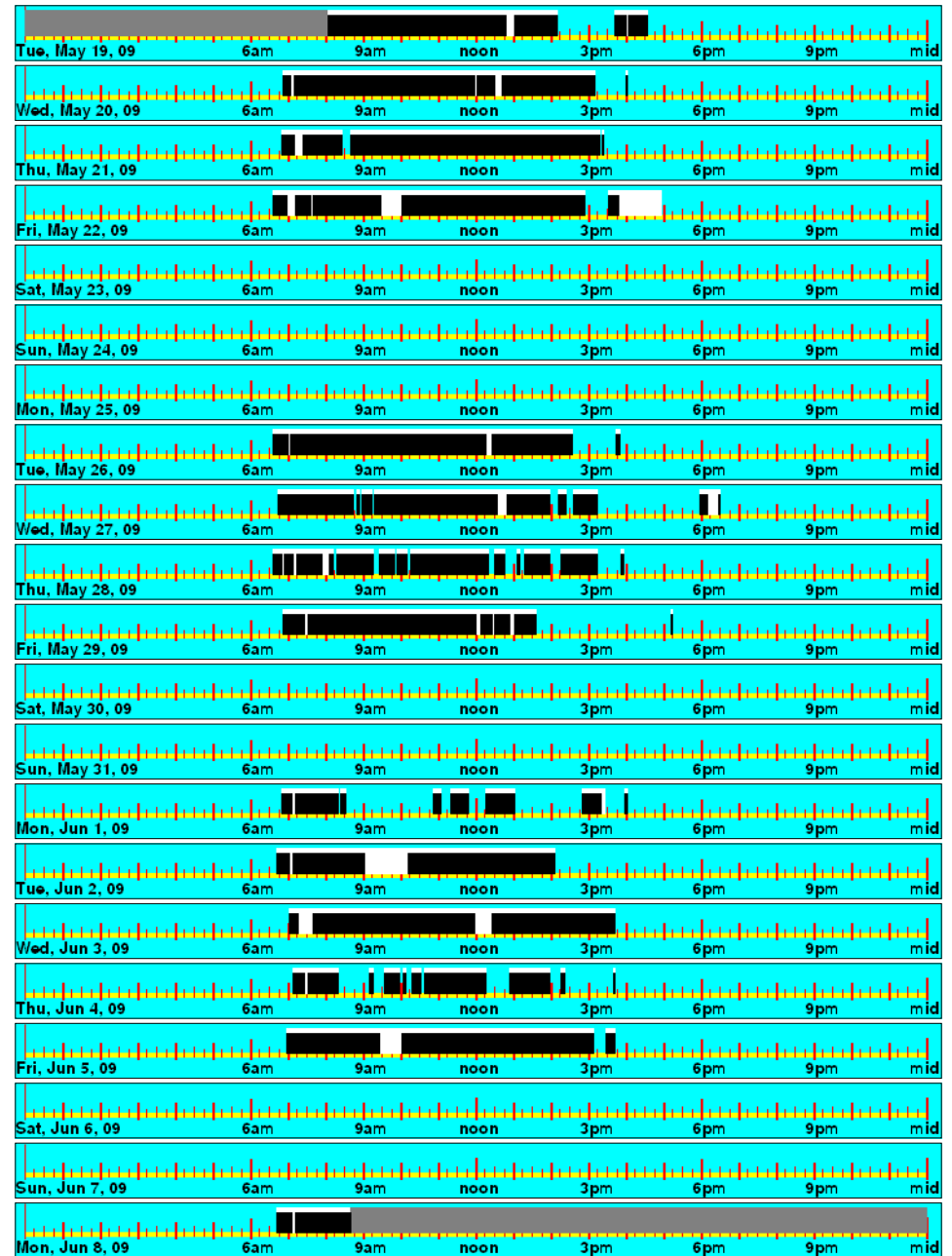
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	24.867	8.289	21.767	7.256
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	24.867	8.289	21.767	7.256

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	98.683	90.850	480.617	34.495	31.757	7.9%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	98.683	90.850	480.617	34.495	31.757	7.9%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	2.407	2.266	8.419	7.744	8.422	7.789	6.811	6.578	8.289	7.256	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	2.407	2.266	8.419	7.744	8.422	7.789	6.811	6.578	8.289	7.256	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	98.683	90.850	480.617	^ ^ ^ ^	34.495	31.757	7.9%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	98.683	90.850	480.617		34.495	31.757	7.9%



ROOM G-02

Area type: Private Office. Logger: 22899. Time delay 10 minutes. NORESO, NEWTON - BIGELOW MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	62.383	24.000	16.700	6.425	15.400	5.925
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	62.383	24.000	16.700	6.425	15.400	5.925

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	20.333	6.778	19.267	6.422
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	20.333	6.778	19.267	6.422

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	1.900	0.633	1.833	0.611
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	1.900	0.633	1.833	0.611

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	55.783	24.000	5.800	2.495	5.567	2.395
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	55.783	24.000	5.800	2.495	5.567	2.395

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	18.700	6.233	17.733	5.911
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	18.700	6.233	17.733	5.911

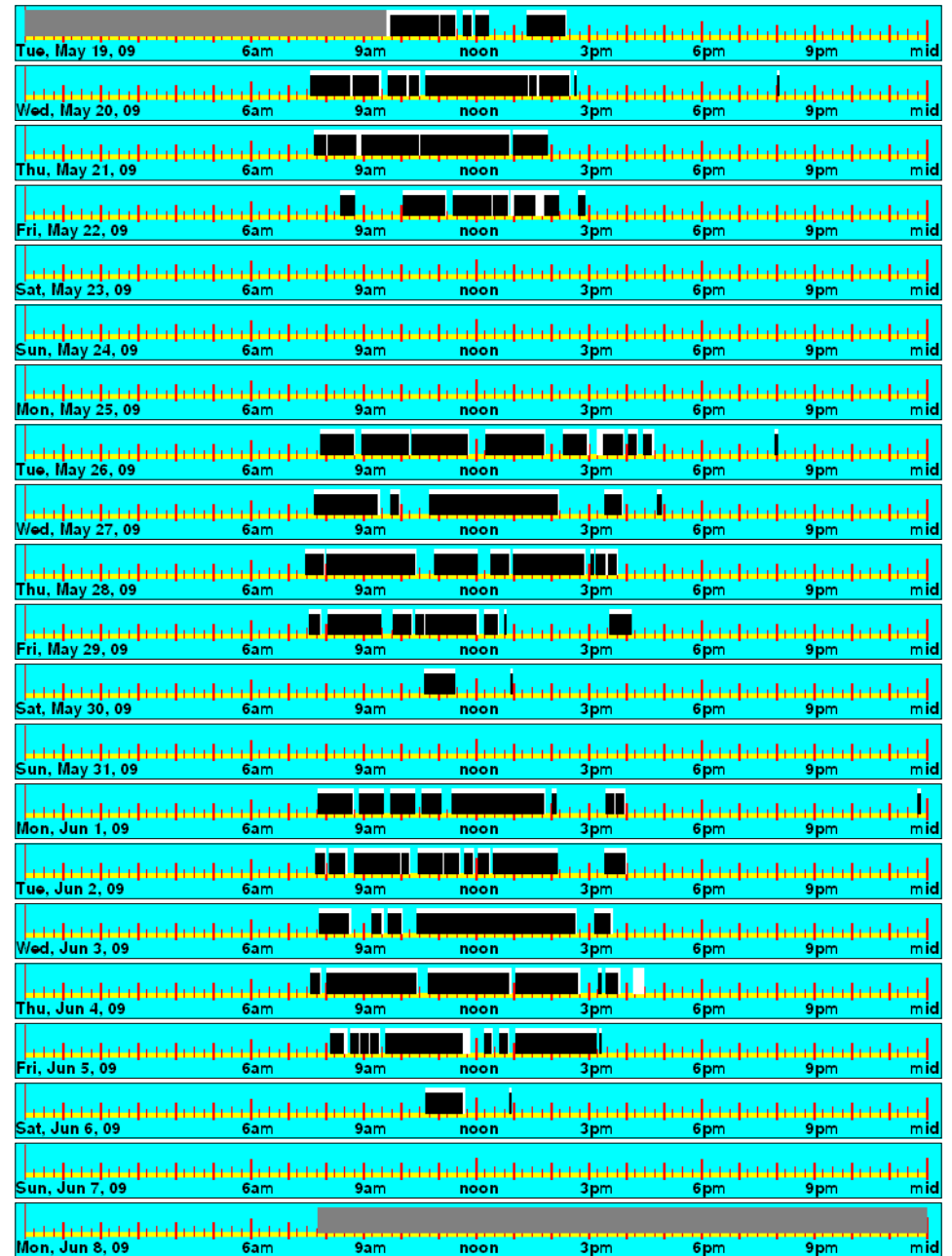
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	15.133	5.044	13.800	4.600
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	15.133	5.044	13.800	4.600

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	78.567	73.600	478.167	27.604	25.859	6.3%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	78.567	73.600	478.167	27.604	25.859	6.3%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	2.495	2.395	6.425	5.925	6.233	5.911	6.778	6.422	5.044	4.600	0.633	0.611
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	2.495	2.395	6.425	5.925	6.233	5.911	6.778	6.422	5.044	4.600	0.633	0.611

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	78.567	73.600	478.167	^ ^ ^ ^	27.604	25.859	6.3%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	78.567	73.600	478.167		27.604	25.859	6.3%



ROOM G-03

Area type: Classroom. Logger: 24532. Time delay 10 minutes. NORESO, NEWTON - BIGELOW MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	62.433	24.000	17.267	6.637	14.367	5.523
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	62.433	24.000	17.267	6.637	14.367	5.523

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	19.700	6.567	17.800	5.933
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	19.700	6.567	17.800	5.933

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	55.733	24.000	7.533	3.244	6.633	2.856
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	55.733	24.000	7.533	3.244	6.633	2.856

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	16.467	5.489	15.133	5.044
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	16.467	5.489	15.133	5.044

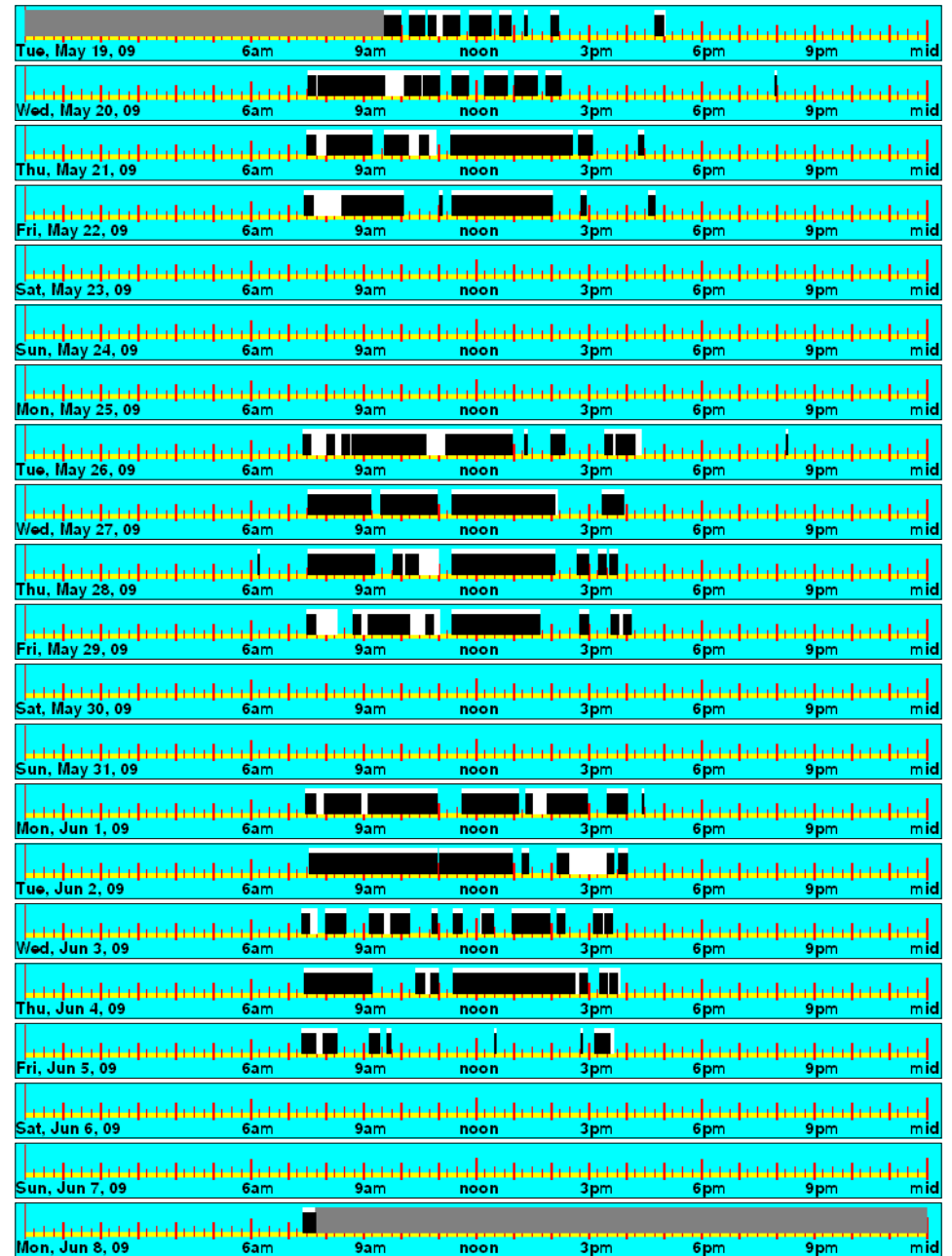
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	13.733	4.578	11.167	3.722
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	13.733	4.578	11.167	3.722

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	74.700	65.100	478.167	26.245	22.872	12.9%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	74.700	65.100	478.167	26.245	22.872	12.9%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	OCC	LO	OCC	LO	OCC	LO	OCC	LO	OCC	LO	OCC	LO	OCC
Peak	0.000	0.000	3.244	2.856	6.637	5.523	5.489	5.044	6.567	5.933	4.578	3.722	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	3.244	2.856	6.637	5.523	5.489	5.044	6.567	5.933	4.578	3.722	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	74.700	65.100	478.167	^ ^ ^ ^	26.245	22.872	12.9%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	74.700	65.100	478.167		26.245	22.872	12.9%



ROOM G-04

Area type: Classroom. Logger: 22518. Time delay 10 minutes. NORESO, NEWTON - BIGELOW MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	62.467	24.000	14.100	5.417	12.833	4.931
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	62.467	24.000	14.100	5.417	12.833	4.931

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	20.667	6.889	20.600	6.867
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	20.667	6.889	20.600	6.867

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.500	0.167	0.500	0.167
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.500	0.167	0.500	0.167

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	55.750	24.000	5.633	2.425	5.633	2.425
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	55.750	24.000	5.633	2.425	5.633	2.425

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	20.200	6.733	19.400	6.467
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	20.200	6.733	19.400	6.467

Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	17.433	5.811	16.100	5.367
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	17.433	5.811	16.100	5.367

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	78.533	75.067	478.217	27.589	26.371	4.4%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	78.533	75.067	478.217	27.589	26.371	4.4%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	2.425	2.425	5.417	4.931	6.733	6.467	6.889	6.867	5.811	5.367	0.167	0.167
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	2.425	2.425	5.417	4.931	6.733	6.467	6.889	6.867	5.811	5.367	0.167	0.167

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	78.533	75.067	478.217	^ ^ ^ ^	27.589	26.371	4.4%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	78.533	75.067	478.217		27.589	26.371	4.4%



WOMENS FACULTY - BY GYM

Area type: Restroom. Logger: 21055. Time delay 10 minutes. NORESCO, NEWTON - BIGELOW MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	24.000	8.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	24.000	8.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	62.767	24.000	32.300	12.351	11.267	4.308
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	62.767	24.000	32.300	12.351	11.267	4.308

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	34.033	11.344	13.767	4.589
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	34.033	11.344	13.767	4.589

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	32.567	10.856	6.300	2.100
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	32.567	10.856	6.300	2.100

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	55.400	24.000	29.433	12.751	4.067	1.762
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	55.400	24.000	29.433	12.751	4.067	1.762

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	27.417	9.139	12.933	4.311
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	27.417	9.139	12.933	4.311

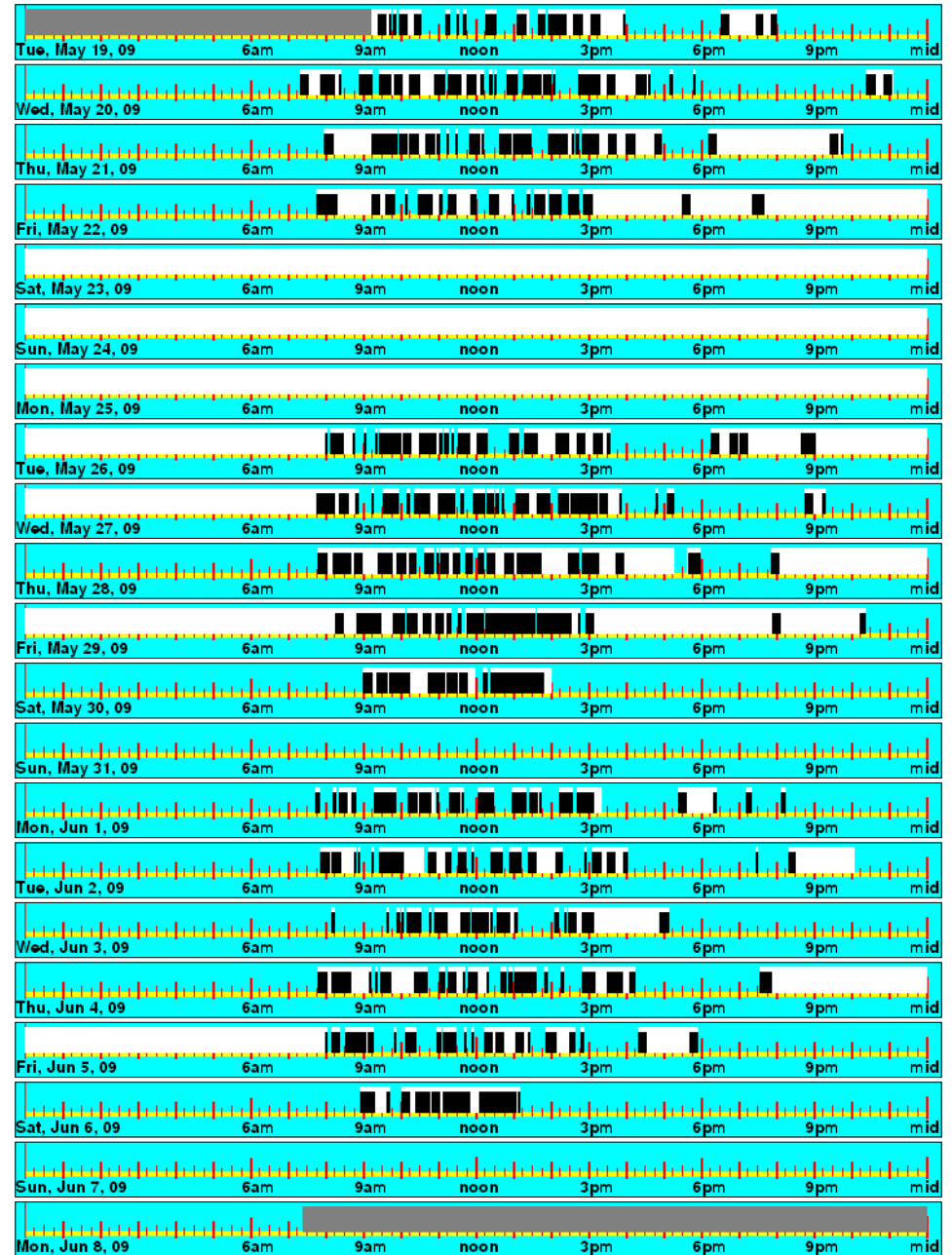
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	48.833	16.278	11.533	3.844
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	48.833	16.278	11.533	3.844

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	228.583	59.867	478.167	80.311	21.034	73.8%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	228.583	59.867	478.167	80.311	21.034	73.8%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	8.000	0.000	12.751	1.762	12.351	4.308	9.139	4.311	11.344	4.589	16.278	3.844	10.856	2.100
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	8.000	0.000	12.751	1.762	12.351	4.308	9.139	4.311	11.344	4.589	16.278	3.844	10.856	2.100

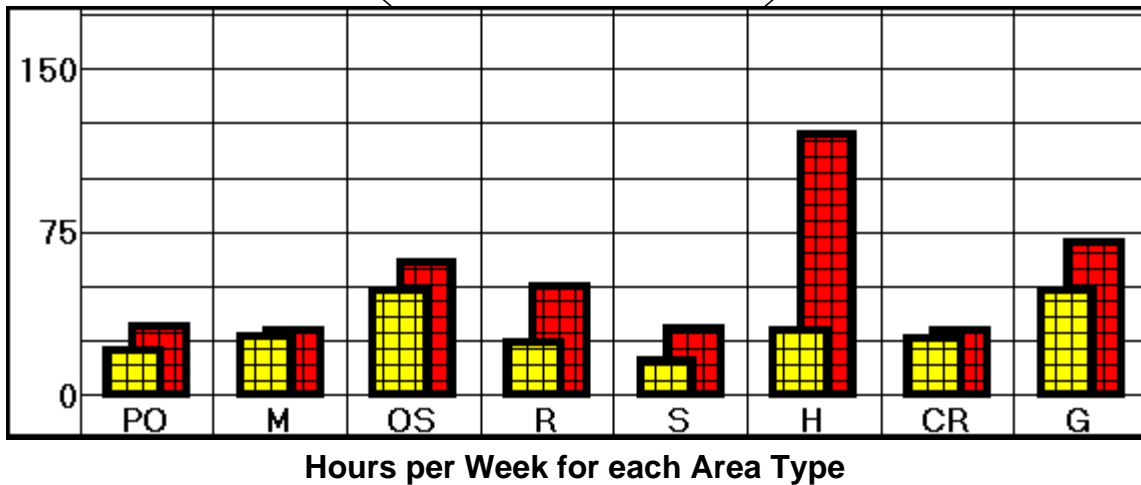
	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	228.583	59.867	478.167	^ ^ ^ ^	80.311	21.034	73.8%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	228.583	59.867	478.167		80.311	21.034	73.8%



Area Type Averages

NORESCO, NEWTON - BROWN MIDDLE SCHOOL

Area Type Averages				Normalized Weekly Lights On					Normalized Weekly Occupied					
Area Type		Qty	Watts	Peak	Off	Shldr 1	Shldr 2	Total	Peak	Off	Shldr 1	Shldr 2	Total	% sav
Private Office	PO	2	325	31.43	0.00	0.00	0.00	31.43	20.53	0.00	0.00	0.00	20.53	34.68%
Meeting Rooms	M	1	180	29.86	0.00	0.00	0.00	29.86	27.01	0.00	0.00	0.00	27.01	9.54%
Open Space	OS	4	775	60.65	0.00	0.00	0.00	60.65	48.06	0.00	0.00	0.00	48.06	20.76%
Restroom	R	2	180	49.73	0.00	0.00	0.00	49.73	24.12	0.00	0.00	0.00	24.12	51.50%
Storage	S	1	60	31.01	0.00	0.00	0.00	31.01	16.10	0.00	0.00	0.00	16.10	48.08%
Hallway	H	2	270	120.02	0.00	0.00	0.00	120.02	29.29	0.00	0.00	0.00	29.29	75.60%
Classroom	CR	11	845	29.98	0.00	0.00	0.00	29.98	26.48	0.00	0.00	0.00	26.48	11.67%
Gym	G	1	2160	69.89	0.00	0.00	0.00	69.89	48.18	0.00	0.00	0.00	48.18	31.06%
Building Average			16345	44.54			0.00	44.54	33.21			0.00	33.21	25.44%



Data Logger Detail for NORESKO, NEWTON - BROWN MIDDLE SCHOOL Page 1 of 1

All Loggers Listed			Hours Installed							Lights On					Occupied				
Logger	Room Location	Ty	Total	Peak	Off	Shldr 1	Shldr 2	Installed	Removed	Peak	Off	Shldr 1	Shldr 2	Total	Peak	Off	Shldr 1	Shldr 2	Total
22830	CAFE - FOOD STORAGE	S	479.22	479.22	0.00	0.00	0.00	5/19/09 10:28 AM	6/08/09 9:40 AM	88.47	0.00	0.00	0.00	88.47	45.93	0.00	0.00	0.00	45.93
23921	CAFE - SERVING LINE	OS	479.18	479.18	0.00	0.00	0.00	5/19/09 10:26 AM	6/08/09 9:36 AM	120.40	0.00	0.00	0.00	120.40	104.77	0.00	0.00	0.00	104.77
23731	FACULTY MEN - BY HEATER	R	479.78	479.78	0.00	0.00	0.00	5/19/09 10:35 AM	6/08/09 10:21 AM	172.92	0.00	0.00	0.00	172.92	65.75	0.00	0.00	0.00	65.75
21973	GIRLS ROOM - BY ROOM 219	R	479.82	479.82	0.00	0.00	0.00	5/19/09 11:06 AM	6/08/09 10:54 AM	111.12	0.00	0.00	0.00	111.12	72.02	0.00	0.00	0.00	72.02
21917	GYM - LOBBY	OS	479.18	479.18	0.00	0.00	0.00	5/19/09 10:32 AM	6/08/09 9:42 AM	279.07	0.00	0.00	0.00	279.07	188.97	0.00	0.00	0.00	188.97
21880	GYM - MIAN ENTRY	G	479.23	479.23	0.00	0.00	0.00	5/19/09 10:31 AM	6/08/09 9:44 AM	199.37	0.00	0.00	0.00	199.37	137.45	0.00	0.00	0.00	137.45
20569	HALL - OUTSIDE ROOM 135	H	478.83	478.83	0.00	0.00	0.00	5/19/09 11:35 AM	6/08/09 10:24 AM	205.35	0.00	0.00	0.00	205.35	144.22	0.00	0.00	0.00	144.22
24034	LIBRARY - OFFICE	PO	479.28	479.28	0.00	0.00	0.00	5/19/09 10:51 AM	6/08/09 10:07 AM	73.97	0.00	0.00	0.00	73.97	53.03	0.00	0.00	0.00	53.03
21969	MAIN OFFICE	OS	479.17	479.17	0.00	0.00	0.00	5/19/09 10:20 AM	6/08/09 9:29 AM	132.20	0.00	0.00	0.00	132.20	123.30	0.00	0.00	0.00	123.30
23293	MAIN OFFICE - MAIL ROOM	OS	479.17	479.17	0.00	0.00	0.00	5/19/09 10:22 AM	6/08/09 9:31 AM	160.28	0.00	0.00	0.00	160.28	131.28	0.00	0.00	0.00	131.28
22224	RM 113 ASSIST. PRINCIPAL	PO	479.20	479.20	0.00	0.00	0.00	5/19/09 10:33 AM	6/08/09 9:44 AM	105.32	0.00	0.00	0.00	105.32	64.07	0.00	0.00	0.00	64.07
24094	ROOM 127	CR	479.30	479.30	0.00	0.00	0.00	5/19/09 10:55 AM	6/08/09 10:12 AM	117.55	0.00	0.00	0.00	117.55	109.27	0.00	0.00	0.00	109.27
20945	ROOM 128	CR	479.75	479.75	0.00	0.00	0.00	5/19/09 10:57 AM	6/08/09 10:41 AM	93.17	0.00	0.00	0.00	93.17	82.10	0.00	0.00	0.00	82.10
23931	ROOM 129	CR	479.78	479.78	0.00	0.00	0.00	5/19/09 10:56 AM	6/08/09 10:42 AM	91.23	0.00	0.00	0.00	91.23	81.70	0.00	0.00	0.00	81.70
22863	ROOM 133	CR	479.78	479.78	0.00	0.00	0.00	5/19/09 11:01 AM	6/08/09 10:47 AM	89.37	0.00	0.00	0.00	89.37	76.83	0.00	0.00	0.00	76.83
24301	ROOM 144	CR	479.22	479.22	0.00	0.00	0.00	5/19/09 10:40 AM	6/08/09 9:52 AM	73.83	0.00	0.00	0.00	73.83	68.87	0.00	0.00	0.00	68.87
21298	ROOM 147	CR	479.27	479.27	0.00	0.00	0.00	5/19/09 10:51 AM	6/08/09 10:06 AM	80.67	0.00	0.00	0.00	80.67	76.97	0.00	0.00	0.00	76.97
24251	ROOM 204	CR	479.87	479.87	0.00	0.00	0.00	5/19/09 11:12 AM	6/08/09 11:03 AM	63.70	0.00	0.00	0.00	63.70	52.67	0.00	0.00	0.00	52.67
23657	ROOM 205 - WORK ROOM	M	479.87	479.87	0.00	0.00	0.00	5/19/09 11:13 AM	6/08/09 11:04 AM	85.28	0.00	0.00	0.00	85.28	77.15	0.00	0.00	0.00	77.15
22887	ROOM 208	CR	479.85	479.85	0.00	0.00	0.00	5/19/09 11:15 AM	6/08/09 11:05 AM	83.57	0.00	0.00	0.00	83.57	71.40	0.00	0.00	0.00	71.40
23609	ROOM 229B	CR	479.83	479.83	0.00	0.00	0.00	5/19/09 11:20 AM	6/08/09 11:09 AM	83.22	0.00	0.00	0.00	83.22	65.08	0.00	0.00	0.00	65.08
24469	ROOM 230 - ART	CR	479.93	479.93	0.00	0.00	0.00	5/19/09 11:19 AM	6/08/09 11:14 AM	82.13	0.00	0.00	0.00	82.13	68.37	0.00	0.00	0.00	68.37
20627	ROOM 232	CR	479.92	479.92	0.00	0.00	0.00	5/19/09 11:21 AM	6/08/09 11:15 AM	83.07	0.00	0.00	0.00	83.07	78.43	0.00	0.00	0.00	78.43
25043	ROOM Z - OUTSIDE STAGE	H	479.02	479.02	0.00	0.00	0.00	5/19/09 11:31 AM	6/08/09 10:31 AM	479.00	0.00	0.00	0.00	479.00	22.77	0.00	0.00	0.00	22.77

Normalized Data Logger Detail for NORESCO, NEWTON - BROWN MIDDLE SCHOOL Page 1 of 1

All Loggers Listed			Load	Normalized Weekly Hours of Use					Normalized Weekly Hours of Occupancy					
Logger	Room Location	Ty	Watts	Peak	Off	Shldr 1	Shldr 2	Total	Peak	Off	Shldr 1	Shldr 2	Total	% sav
22830	CAFE - FOOD	S	60	31.01	0.00	0.00	0.00	31.01	16.10	0.00	0.00	0.00	16.10	48.08%
23921	CAFE -	OS	1540	42.21	0.00	0.00	0.00	42.21	36.73	0.00	0.00	0.00	36.73	12.98%
23731	FACULTY	R	180	60.55	0.00	0.00	0.00	60.55	23.02	0.00	0.00	0.00	23.02	61.98%
21973	GIRLS ROOM -	R	180	38.91	0.00	0.00	0.00	38.91	25.22	0.00	0.00	0.00	25.22	35.18%
21917	GYM - LOBBY	OS	960	97.84	0.00	0.00	0.00	97.84	66.25	0.00	0.00	0.00	66.25	32.29%
21880	GYM - MIAN	G	2160	69.89	0.00	0.00	0.00	69.89	48.18	0.00	0.00	0.00	48.18	31.06%
20569	HALL -	H	480	72.05	0.00	0.00	0.00	72.05	50.60	0.00	0.00	0.00	50.60	29.77%
24034	LIBRARY -	PO	540	25.93	0.00	0.00	0.00	25.93	18.59	0.00	0.00	0.00	18.59	28.31%
21969	MAIN OFFICE	OS	540	46.35	0.00	0.00	0.00	46.35	43.23	0.00	0.00	0.00	43.23	6.73%
23293	MAIN OFFICE -	OS	60	56.20	0.00	0.00	0.00	56.20	46.03	0.00	0.00	0.00	46.03	18.10%
22224	RM 113	PO	110	36.92	0.00	0.00	0.00	36.92	22.46	0.00	0.00	0.00	22.46	39.17%
24094	ROOM 127	CR	880	41.20	0.00	0.00	0.00	41.20	38.30	0.00	0.00	0.00	38.30	7.04%
20945	ROOM 128	CR	660	32.63	0.00	0.00	0.00	32.63	28.75	0.00	0.00	0.00	28.75	11.89%
23931	ROOM 129	CR	880	31.95	0.00	0.00	0.00	31.95	28.61	0.00	0.00	0.00	28.61	10.45%
22863	ROOM 133	CR	990	31.29	0.00	0.00	0.00	31.29	26.90	0.00	0.00	0.00	26.90	14.03%
24301	ROOM 144	CR	1080	25.88	0.00	0.00	0.00	25.88	24.14	0.00	0.00	0.00	24.14	6.72%
21298	ROOM 147	CR	720	28.28	0.00	0.00	0.00	28.28	26.98	0.00	0.00	0.00	26.98	4.60%
24251	ROOM 204	CR	440	22.30	0.00	0.00	0.00	22.30	18.44	0.00	0.00	0.00	18.44	17.31%
23657	ROOM 205 -	M	180	29.86	0.00	0.00	0.00	29.86	27.01	0.00	0.00	0.00	27.01	9.54%
22887	ROOM 208	CR	880	29.26	0.00	0.00	0.00	29.26	25.00	0.00	0.00	0.00	25.00	14.56%
23609	ROOM 229B	CR	540	29.14	0.00	0.00	0.00	29.14	22.79	0.00	0.00	0.00	22.79	21.79%
24469	ROOM 230 -	CR	1350	28.75	0.00	0.00	0.00	28.75	23.93	0.00	0.00	0.00	23.93	16.77%
20627	ROOM 232	CR	880	29.08	0.00	0.00	0.00	29.08	27.46	0.00	0.00	0.00	27.46	5.57%
25043	ROOM Z -	H	60	167.99	0.00	0.00	0.00	167.99	7.98	0.00	0.00	0.00	7.98	95.25%

Building Summary Totals for NORESCO, NEWTON - BROWN MIDDLE SCHOOL Page 1 of 1

Building Summary Totals				Lights On KWHR					Occupied KWHR				
Area Type		Qty	Watts	Peak	Off	Shldr 1	Shldr 2	Total	Peak	Off	Shldr 1	Shldr 2	Total
Private Office	PO	2	650	20	0	0	0	20	13	0	0	0	13
Meeting Rooms	M	1	180	5	0	0	0	5	5	0	0	0	5
Open Space	OS	4	3100	188	0	0	0	188	149	0	0	0	149
Restroom	R	2	360	18	0	0	0	18	9	0	0	0	9
Storage	S	1	60	2	0	0	0	2	1	0	0	0	1
Hallway	H	2	540	65	0	0	0	65	16	0	0	0	16
Classroom	CR	11	9295	279	0	0	0	279	246	0	0	0	246
Gym	G	1	2160	151	0	0	0	151	104	0	0	0	104
Building Totals			16345	728			0	728	543			0	543

CAFE - FOOD STORAGE

Area type: Storage. Logger: 22830. Time delay 10 minutes. NORESKO, NEWTON - BROWN MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	61.550	24.000	17.067	6.655	9.267	3.613
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	61.550	24.000	17.067	6.655	9.267	3.613

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	20.200	6.733	10.767	3.589
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	20.200	6.733	10.767	3.589

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	57.667	24.000	9.933	4.134	5.400	2.247
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	57.667	24.000	9.933	4.134	5.400	2.247

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	20.567	6.856	10.200	3.400
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	20.567	6.856	10.200	3.400

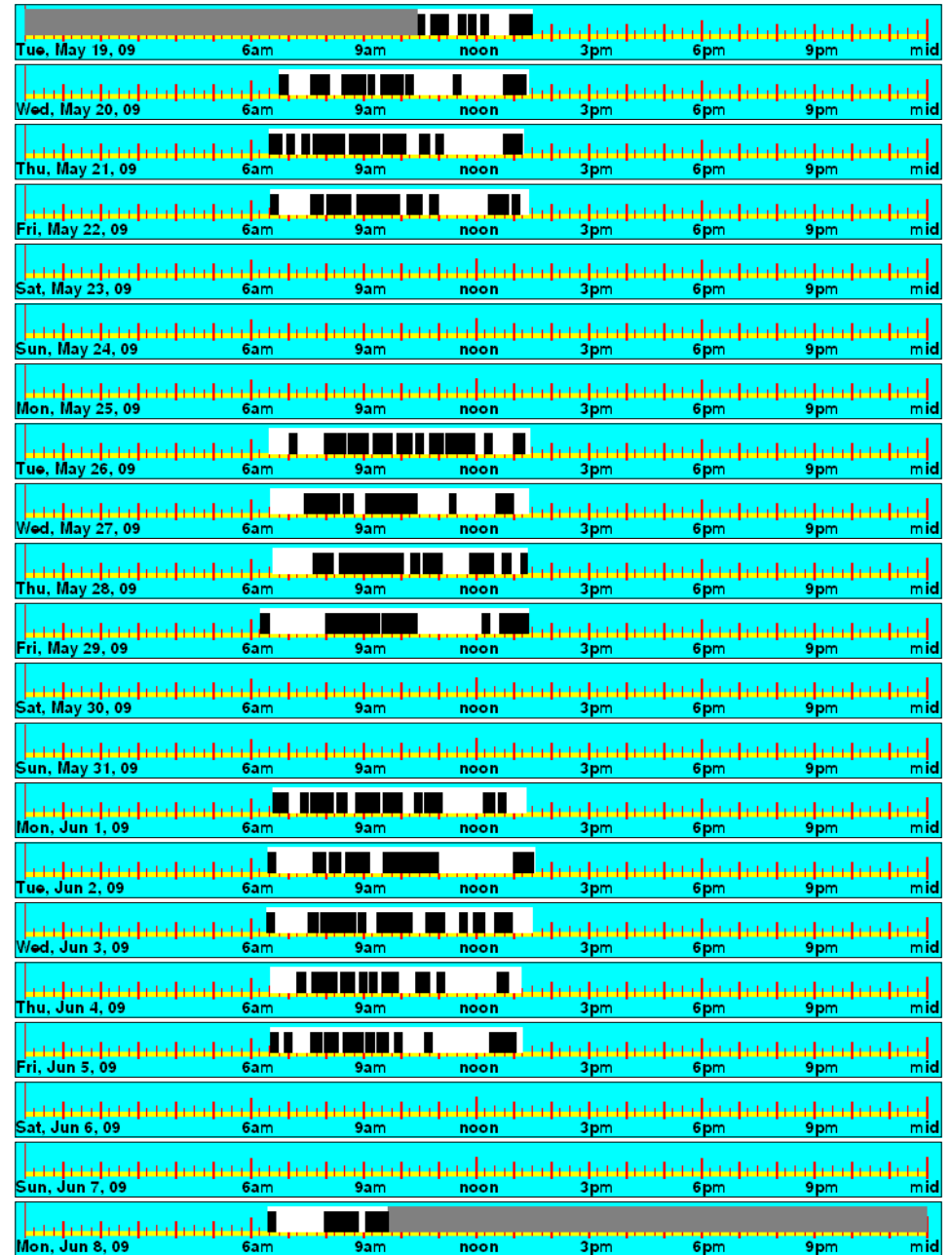
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	20.700	6.900	10.300	3.433
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	20.700	6.900	10.300	3.433

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	88.467	45.933	479.217	31.014	16.103	48.1%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	88.467	45.933	479.217	31.014	16.103	48.1%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	4.134	2.247	6.655	3.613	6.856	3.400	6.733	3.589	6.900	3.433	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	4.134	2.247	6.655	3.613	6.856	3.400	6.733	3.589	6.900	3.433	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	88.467	45.933	479.217	^ ^ ^ ^	31.014	16.103	48.1%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	88.467	45.933	479.217		31.014	16.103	48.1%



CAFE - SERVING LINE

Area type: Open Space. Logger: 23921. Time delay 10 minutes. NORESKO, NEWTON - BROWN MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	61.583	24.000	22.000	8.574	19.367	7.547
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	61.583	24.000	22.000	8.574	19.367	7.547

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	30.467	10.156	23.667	7.889
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	30.467	10.156	23.667	7.889

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	57.600	24.000	11.967	4.986	10.500	4.375
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	57.600	24.000	11.967	4.986	10.500	4.375

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	25.067	8.356	23.300	7.767
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	25.067	8.356	23.300	7.767

Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	30.900	10.300	27.933	9.311
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	30.900	10.300	27.933	9.311

	Logged Totals			Normalized Totals		
Peak	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	120.400	104.767	479.183	42.212	36.731	13.0%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	120.400	104.767	479.183	42.212	36.731	13.0%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	4.986	4.375	8.574	7.547	8.356	7.767	10.156	7.889	10.300	9.311	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	4.986	4.375	8.574	7.547	8.356	7.767	10.156	7.889	10.300	9.311	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	120.400	104.767	479.183	^ ^ ^ ^	42.212	36.731	13.0%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	120.400	104.767	479.183		42.212	36.731	13.0%



FACULTY MEN - BY HEATER RM

Area type: Restroom. Logger: 23731. Time delay 10 minutes. NORESKO, NEWTON - BROWN MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	17.917	5.972	8.167	2.722
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	17.917	5.972	8.167	2.722

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	61.433	24.000	27.700	10.821	13.467	5.261
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	61.433	24.000	27.700	10.821	13.467	5.261

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	29.567	9.856	15.167	5.056
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	29.567	9.856	15.167	5.056

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	24.033	8.011	0.033	0.011
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	24.033	8.011	0.033	0.011

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	58.350	24.000	14.350	5.902	5.883	2.420
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	58.350	24.000	14.350	5.902	5.883	2.420

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	26.900	8.967	12.400	4.133
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	26.900	8.967	12.400	4.133

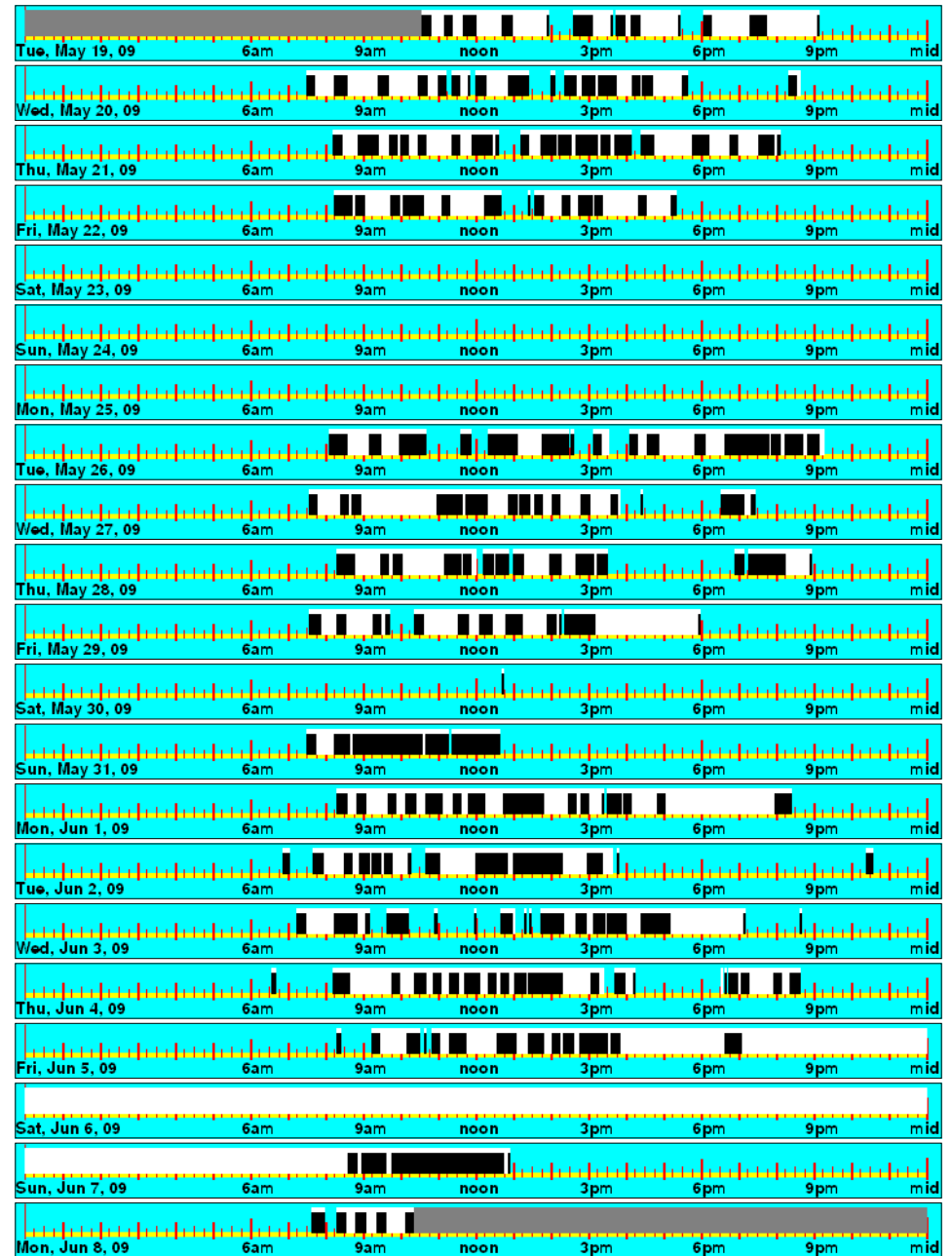
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	32.450	10.817	10.633	3.544
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	32.450	10.817	10.633	3.544

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	172.917	65.750	479.783	60.548	23.023	62.0%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	172.917	65.750	479.783	60.548	23.023	62.0%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	5.972	2.722	5.902	2.420	10.821	5.261	8.967	4.133	9.856	5.056	10.817	3.544	8.011	0.011
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	5.972	2.722	5.902	2.420	10.821	5.261	8.967	4.133	9.856	5.056	10.817	3.544	8.011	0.011

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	172.917	65.750	479.783	^ ^ ^ ^	60.548	23.023	62.0%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	172.917	65.750	479.783		60.548	23.023	62.0%



GIRLS ROOM - BY ROOM 219

Area type: Restroom. Logger: 21973. Time delay 10 minutes. NORESKO, NEWTON - BROWN MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	60.917	24.000	24.800	9.771	12.300	4.846
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	60.917	24.000	24.800	9.771	12.300	4.846

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	25.033	8.344	16.400	5.467
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	25.033	8.344	16.400	5.467

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	58.900	24.000	13.717	5.589	7.050	2.873
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	58.900	24.000	13.717	5.589	7.050	2.873

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	25.567	8.522	18.733	6.244
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	25.567	8.522	18.733	6.244

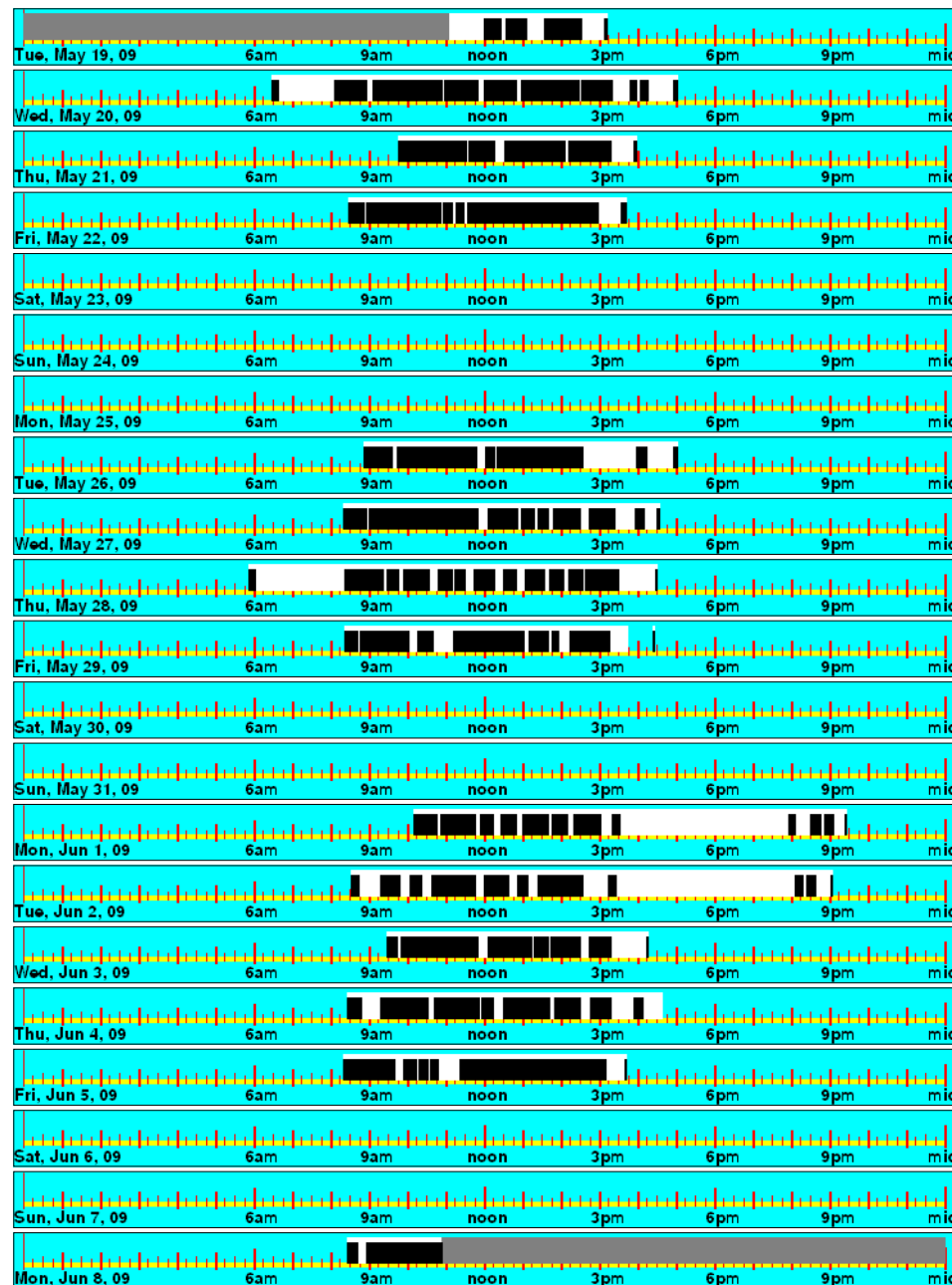
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	22.000	7.333	17.533	5.844
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	22.000	7.333	17.533	5.844

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	111.117	72.017	479.817	38.906	25.215	35.2%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	111.117	72.017	479.817	38.906	25.215	35.2%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	5.589	2.873	9.771	4.846	8.522	6.244	8.344	5.467	7.333	5.844	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	5.589	2.873	9.771	4.846	8.522	6.244	8.344	5.467	7.333	5.844	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	111.117	72.017	479.817	^ ^ ^ ^	38.906	25.215	35.2%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	111.117	72.017	479.817		38.906	25.215	35.2%



GYM - LOBBY

Area type: Open Space. Logger: 21917. Time delay 10 minutes. NORESKO, NEWTON - BROWN MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	29.967	9.989	9.000	3.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	29.967	9.989	9.000	3.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	61.483	24.000	45.233	17.657	39.733	15.510
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	61.483	24.000	45.233	17.657	39.733	15.510

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	50.950	16.983	45.600	15.200
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	50.950	16.983	45.600	15.200

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	24.000	8.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	24.000	8.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	57.700	24.000	27.683	11.515	17.233	7.168
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	57.700	24.000	27.683	11.515	17.233	7.168

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	49.533	16.511	41.600	13.867
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	49.533	16.511	41.600	13.867

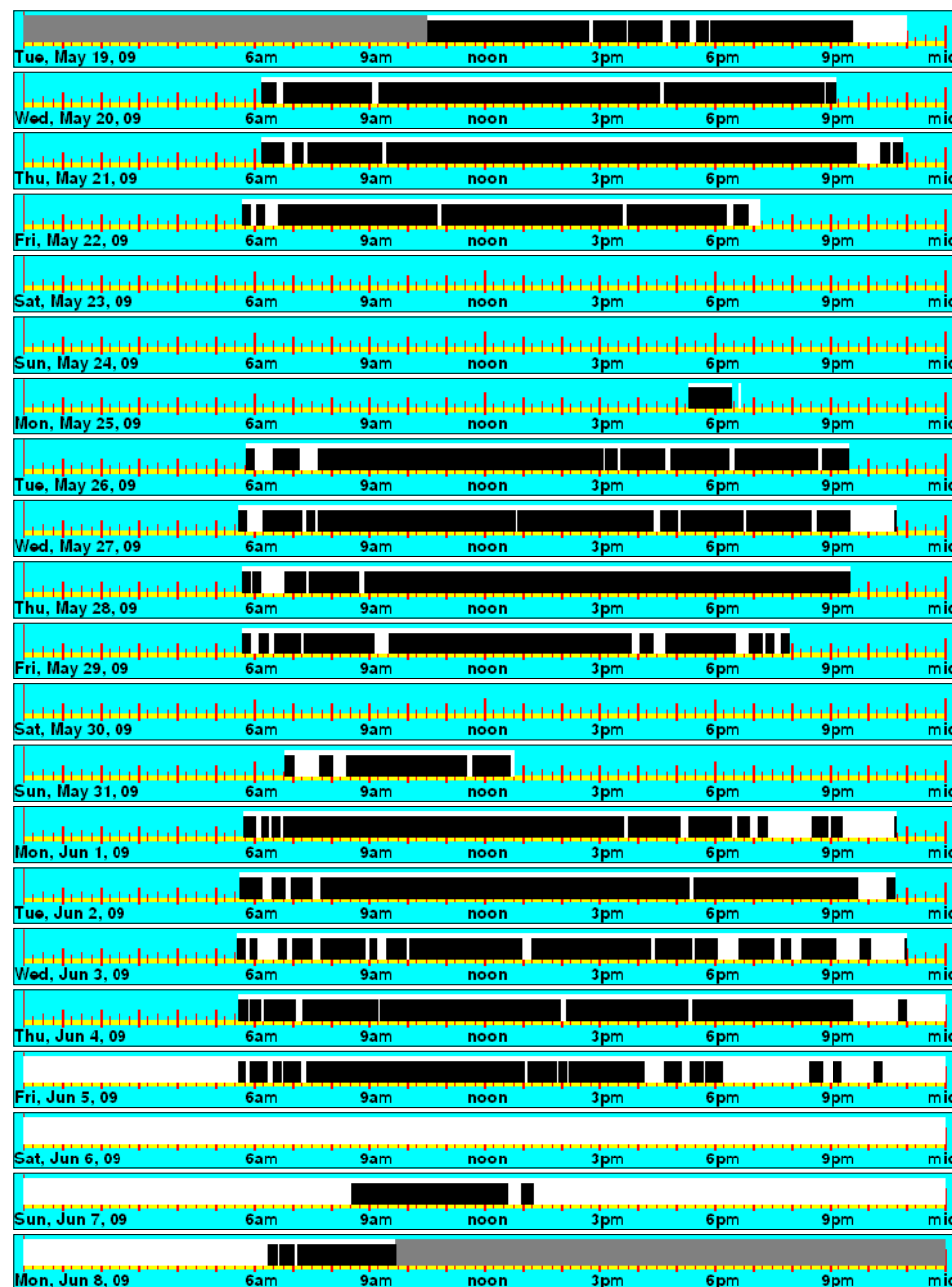
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	51.700	17.233	35.800	11.933
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	51.700	17.233	35.800	11.933

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	279.067	188.967	479.183	97.840	66.251	32.3%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	279.067	188.967	479.183	97.840	66.251	32.3%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	9.989	3.000	11.515	7.168	17.657	15.510	16.511	13.867	16.983	15.200	17.233	11.933	8.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	9.989	3.000	11.515	7.168	17.657	15.510	16.511	13.867	16.983	15.200	17.233	11.933	8.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	279.067	188.967	479.183	^ ^ ^ ^	97.840	66.251	32.3%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	279.067	188.967	479.183		97.840	66.251	32.3%



GYM - MIAN ENTRY

Area type: Gym. Logger: 21880. Time delay 10 minutes. NORESKO, NEWTON - BROWN MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	5.167	1.722	2.700	0.900
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	5.167	1.722	2.700	0.900

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	61.500	24.000	42.633	16.637	30.700	11.980
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	61.500	24.000	42.633	16.637	30.700	11.980

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	48.467	16.156	37.867	12.622
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	48.467	16.156	37.867	12.622

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	57.733	24.000	21.833	9.076	13.000	5.404
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	57.733	24.000	21.833	9.076	13.000	5.404

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	43.733	14.578	29.300	9.767
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	43.733	14.578	29.300	9.767

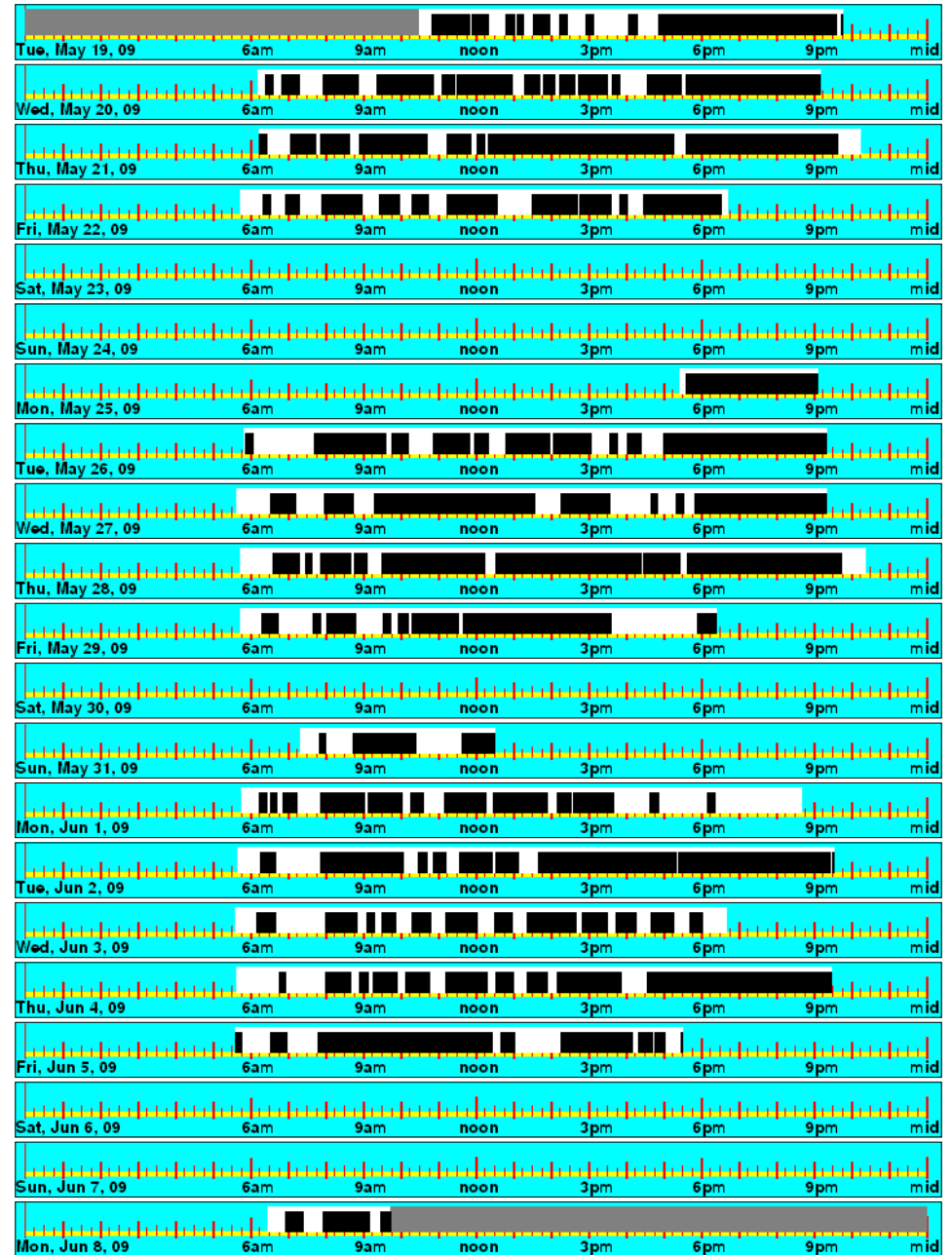
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	37.533	12.511	23.883	7.961
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	37.533	12.511	23.883	7.961

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	199.367	137.450	479.233	69.890	48.184	31.1%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	199.367	137.450	479.233	69.890	48.184	31.1%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	1.722	0.900	9.076	5.404	16.637	11.980	14.578	9.767	16.156	12.622	12.511	7.961	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	1.722	0.900	9.076	5.404	16.637	11.980	14.578	9.767	16.156	12.622	12.511	7.961	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	199.367	137.450	479.233	^ ^ ^ ^	69.890	48.184	31.1%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	199.367	137.450	479.233		69.890	48.184	31.1%



HALL - OUTSIDE ROOM 135

Area type: Hallway. Logger: 20569. Time delay 10 minutes. NORESKO, NEWTON - BROWN MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	8.667	2.889	7.433	2.478
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	8.667	2.889	7.433	2.478

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	60.433	24.000	42.667	16.944	28.367	11.265
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	60.433	24.000	42.667	16.944	28.367	11.265

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	46.033	15.344	34.700	11.567
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	46.033	15.344	34.700	11.567

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	1.567	0.522	0.400	0.133
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	1.567	0.522	0.400	0.133

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	58.400	24.000	20.550	8.445	13.483	5.541
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	58.400	24.000	20.550	8.445	13.483	5.541

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	46.800	15.600	31.700	10.567
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	46.800	15.600	31.700	10.567

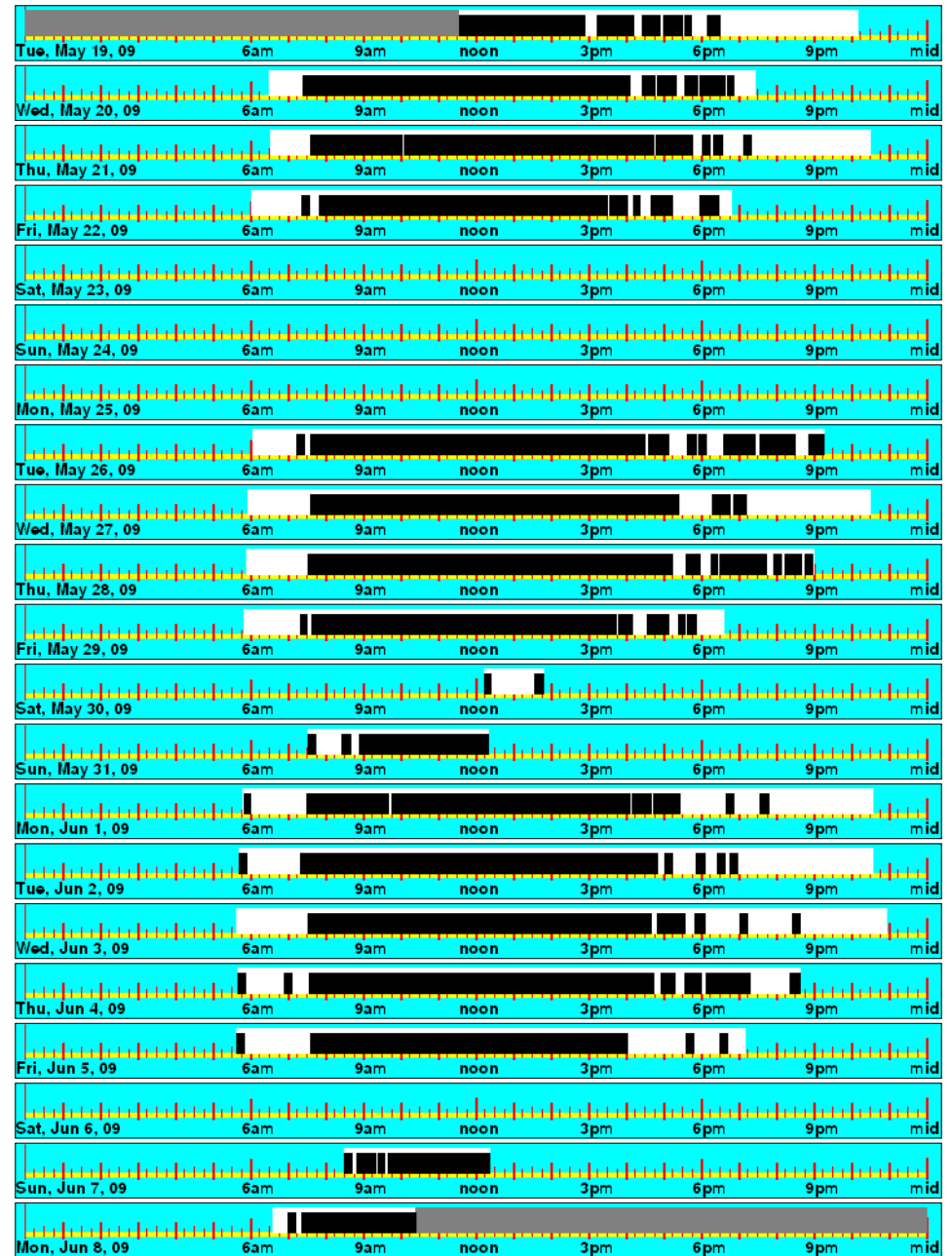
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	39.067	13.022	28.133	9.378
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	39.067	13.022	28.133	9.378

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	205.350	144.217	478.833	72.048	50.599	29.8%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	205.350	144.217	478.833	72.048	50.599	29.8%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	2.889	2.478	8.445	5.541	16.944	11.265	15.600	10.567	15.344	11.567	13.022	9.378	0.522	0.133
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	2.889	2.478	8.445	5.541	16.944	11.265	15.600	10.567	15.344	11.567	13.022	9.378	0.522	0.133

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	205.350	144.217	478.833	^ ^ ^ ^	72.048	50.599	29.8%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	205.350	144.217	478.833		72.048	50.599	29.8%



LIBRARY - OFFICE

Area type: Private Office. Logger: 24034. Time delay 10 minutes. NORESCO, NEWTON - BROWN MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	61.167	24.000	19.200	7.534	14.533	5.702
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	61.167	24.000	19.200	7.534	14.533	5.702

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	19.500	6.500	13.400	4.467
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	19.500	6.500	13.400	4.467

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	58.117	24.000	8.733	3.607	5.867	2.423
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	58.117	24.000	8.733	3.607	5.867	2.423

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	13.167	4.389	10.567	3.522
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	13.167	4.389	10.567	3.522

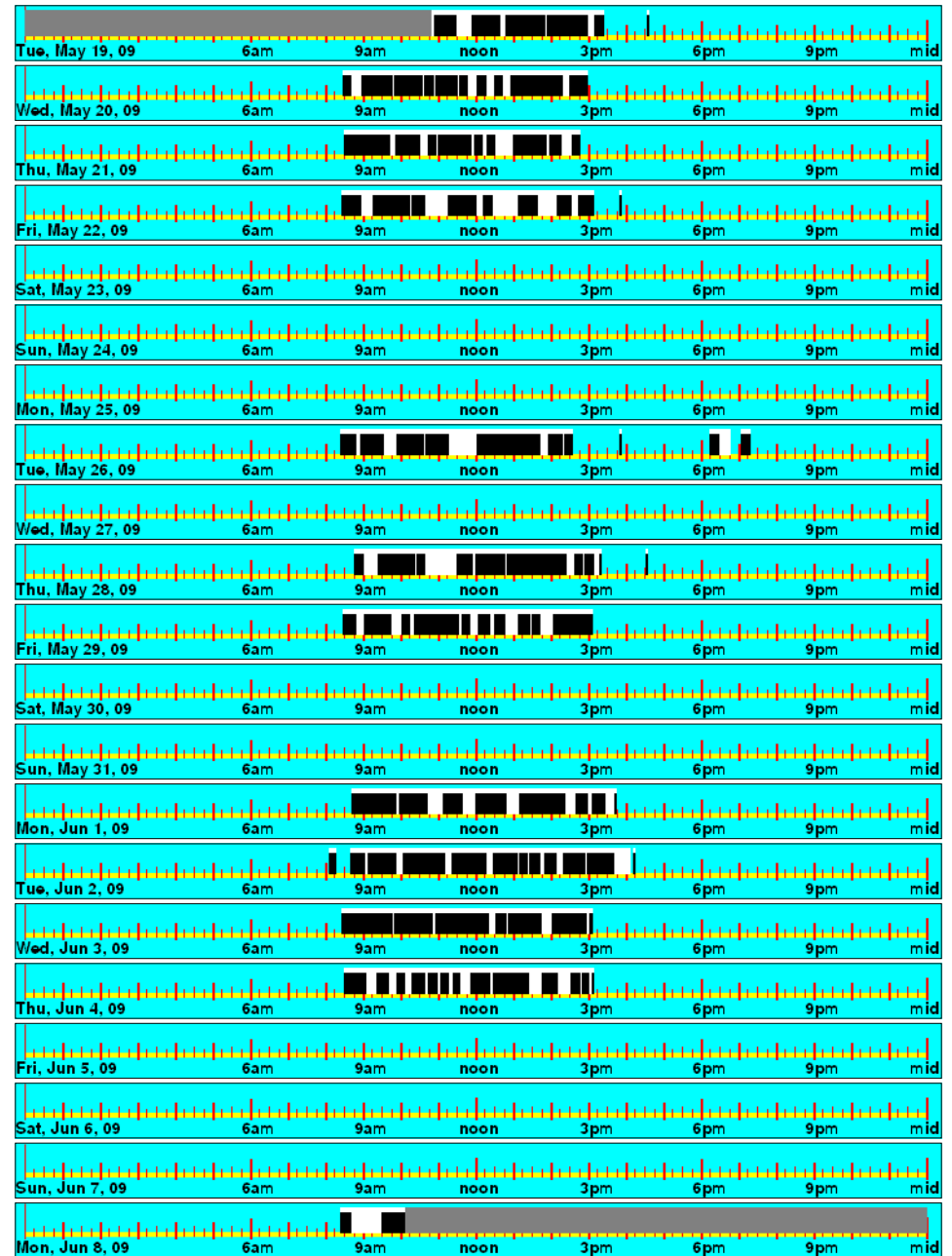
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	13.367	4.456	8.667	2.889
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	13.367	4.456	8.667	2.889

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	73.967	53.033	479.283	25.927	18.589	28.3%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	73.967	53.033	479.283	25.927	18.589	28.3%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	3.607	2.423	7.534	5.702	4.389	3.522	6.500	4.467	4.456	2.889	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	3.607	2.423	7.534	5.702	4.389	3.522	6.500	4.467	4.456	2.889	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	73.967	53.033	479.283	^ ^ ^ ^	25.927	18.589	28.3%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	73.967	53.033	479.283		25.927	18.589	28.3%



MAIN OFFICE

Area type: Open Space. Logger: 21969. Time delay 10 minutes. NORESO, NEWTON - BROWN MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	61.683	24.000	28.600	11.128	25.600	9.961
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	61.683	24.000	28.600	11.128	25.600	9.961

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	29.433	9.811	27.967	9.322
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	29.433	9.811	27.967	9.322

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	57.483	24.000	12.933	5.400	12.267	5.121
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	57.483	24.000	12.933	5.400	12.267	5.121

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	29.333	9.778	27.700	9.233
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	29.333	9.778	27.700	9.233

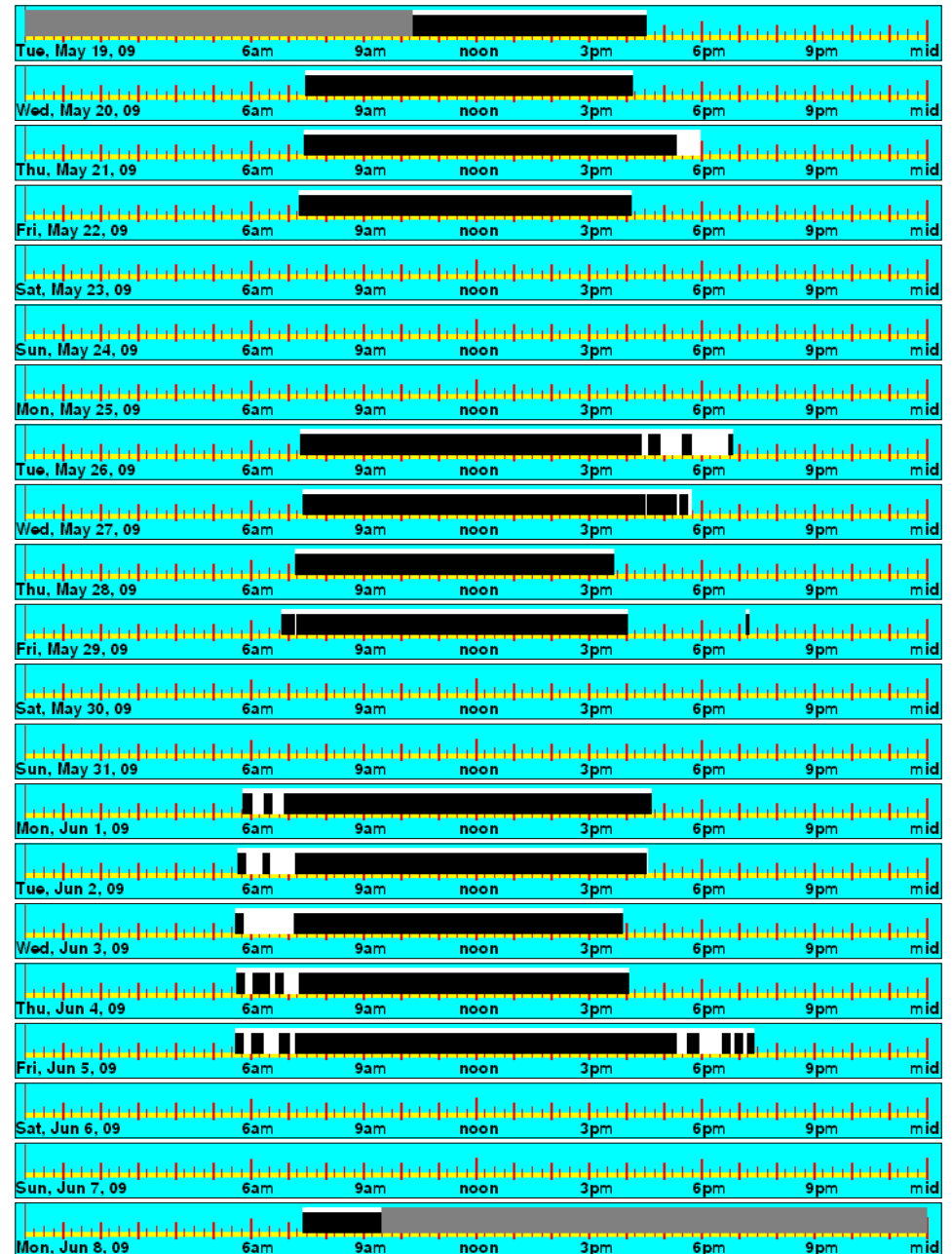
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	31.900	10.633	29.767	9.922
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	31.900	10.633	29.767	9.922

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	132.200	123.300	479.167	46.350	43.230	6.7%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	132.200	123.300	479.167	46.350	43.230	6.7%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	5.400	5.121	11.128	9.961	9.778	9.233	9.811	9.322	10.633	9.922	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	5.400	5.121	11.128	9.961	9.778	9.233	9.811	9.322	10.633	9.922	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	132.200	123.300	479.167	^ ^ ^ ^	46.350	43.230	6.7%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	132.200	123.300	479.167		46.350	43.230	6.7%



MAIN OFFICE - MAIL ROOM

Area type: Open Space. Logger: 23293. Time delay 10 minutes. NORESKO, NEWTON - BROWN MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.367	0.122	0.200	0.067
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.367	0.122	0.200	0.067

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	61.650	24.000	34.800	13.547	27.567	10.732
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	61.650	24.000	34.800	13.547	27.567	10.732

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	36.733	12.244	28.533	9.511
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	36.733	12.244	28.533	9.511

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	57.517	24.000	17.983	7.504	13.550	5.654
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	57.517	24.000	17.983	7.504	13.550	5.654

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	37.467	12.489	31.800	10.600
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	37.467	12.489	31.800	10.600

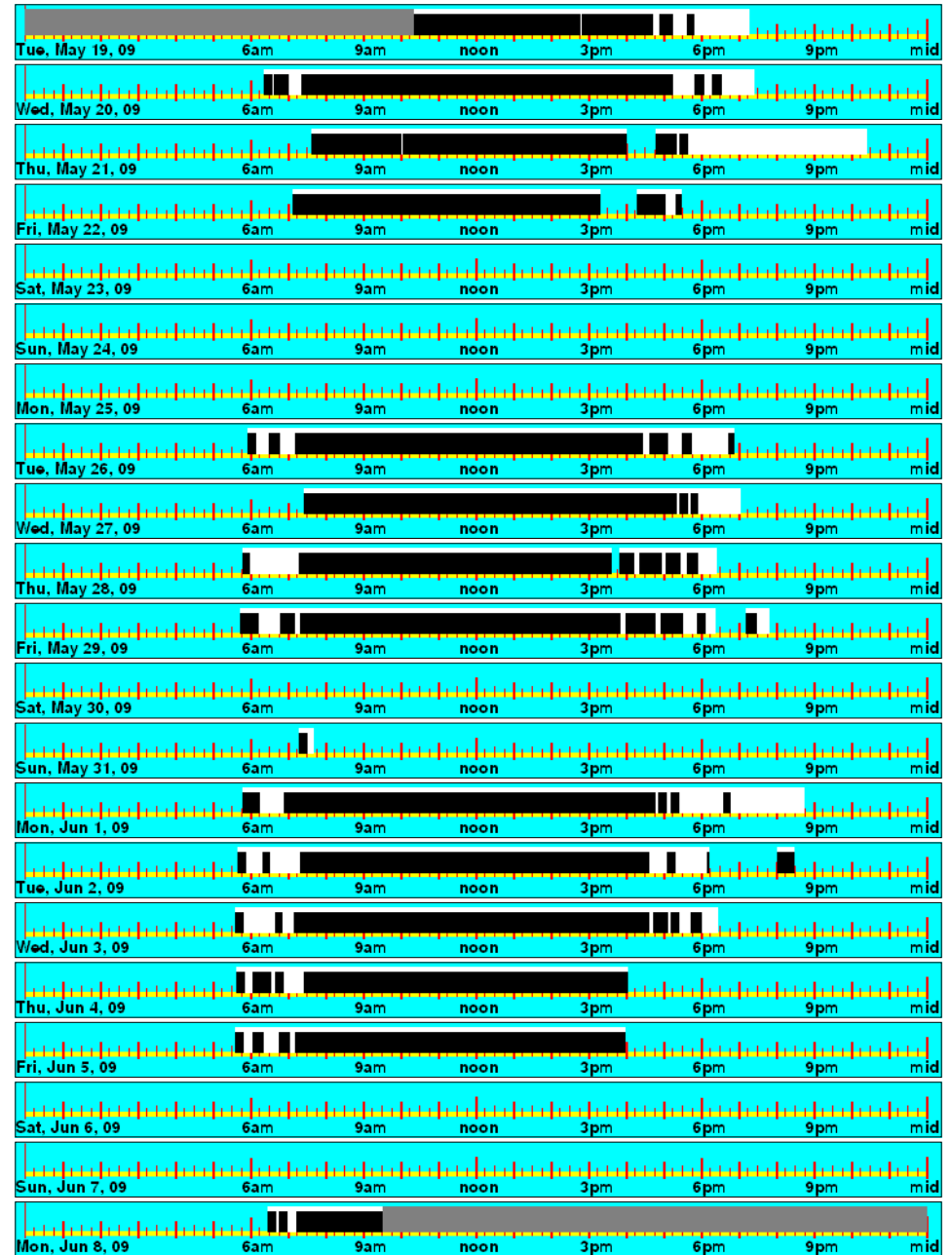
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	32.933	10.978	29.633	9.878
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	32.933	10.978	29.633	9.878

	Logged Totals			Normalized Totals		
Peak	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	160.283	131.283	479.167	56.197	46.029	18.1%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	160.283	131.283	479.167	56.197	46.029	18.1%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.122	0.067	7.504	5.654	13.547	10.732	12.489	10.600	12.244	9.511	10.978	9.878	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.122	0.067	7.504	5.654	13.547	10.732	12.489	10.600	12.244	9.511	10.978	9.878	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	160.283	131.283	479.167	^ ^ ^ ^	56.197	46.029	18.1%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	160.283	131.283	479.167		56.197	46.029	18.1%



RM 113 ASSIST. PRINCIPAL

Area type: Private Office. Logger: 22224. Time delay 10 minutes. NORESO, NEWTON - BROWN MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.033	0.011	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.033	0.011	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	61.467	24.000	24.033	9.384	12.200	4.764
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	61.467	24.000	24.033	9.384	12.200	4.764

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	25.967	8.656	17.600	5.867
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	25.967	8.656	17.600	5.867

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	57.733	24.000	11.950	4.968	7.933	3.298
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	57.733	24.000	11.950	4.968	7.933	3.298

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	24.167	8.056	16.367	5.456
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	24.167	8.056	16.367	5.456

Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	19.167	6.389	9.967	3.322
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	19.167	6.389	9.967	3.322

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	105.317	64.067	479.200	36.922	22.461	39.2%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	105.317	64.067	479.200	36.922	22.461	39.2%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	OCC	LO	OCC	LO	OCC	LO	OCC	LO	OCC	LO	OCC	LO	OCC
Peak	0.011	0.000	4.968	3.298	9.384	4.764	8.056	5.456	8.656	5.867	6.389	3.322	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.011	0.000	4.968	3.298	9.384	4.764	8.056	5.456	8.656	5.867	6.389	3.322	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	105.317	64.067	479.200	^ ^ ^ ^	36.922	22.461	39.2%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	105.317	64.067	479.200		36.922	22.461	39.2%



ROOM 127

Area type: Classroom. Logger: 24094. Time delay 10 minutes. NORESCO, NEWTON - BROWN MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	3.467	1.156	2.600	0.867
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	3.467	1.156	2.600	0.867

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	61.100	24.000	21.667	8.511	19.200	7.542
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	61.100	24.000	21.667	8.511	19.200	7.542

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	27.733	9.244	26.800	8.933
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	27.733	9.244	26.800	8.933

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	58.200	24.000	11.550	4.763	10.433	4.302
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	58.200	24.000	11.550	4.763	10.433	4.302

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	27.533	9.178	25.433	8.478
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	27.533	9.178	25.433	8.478

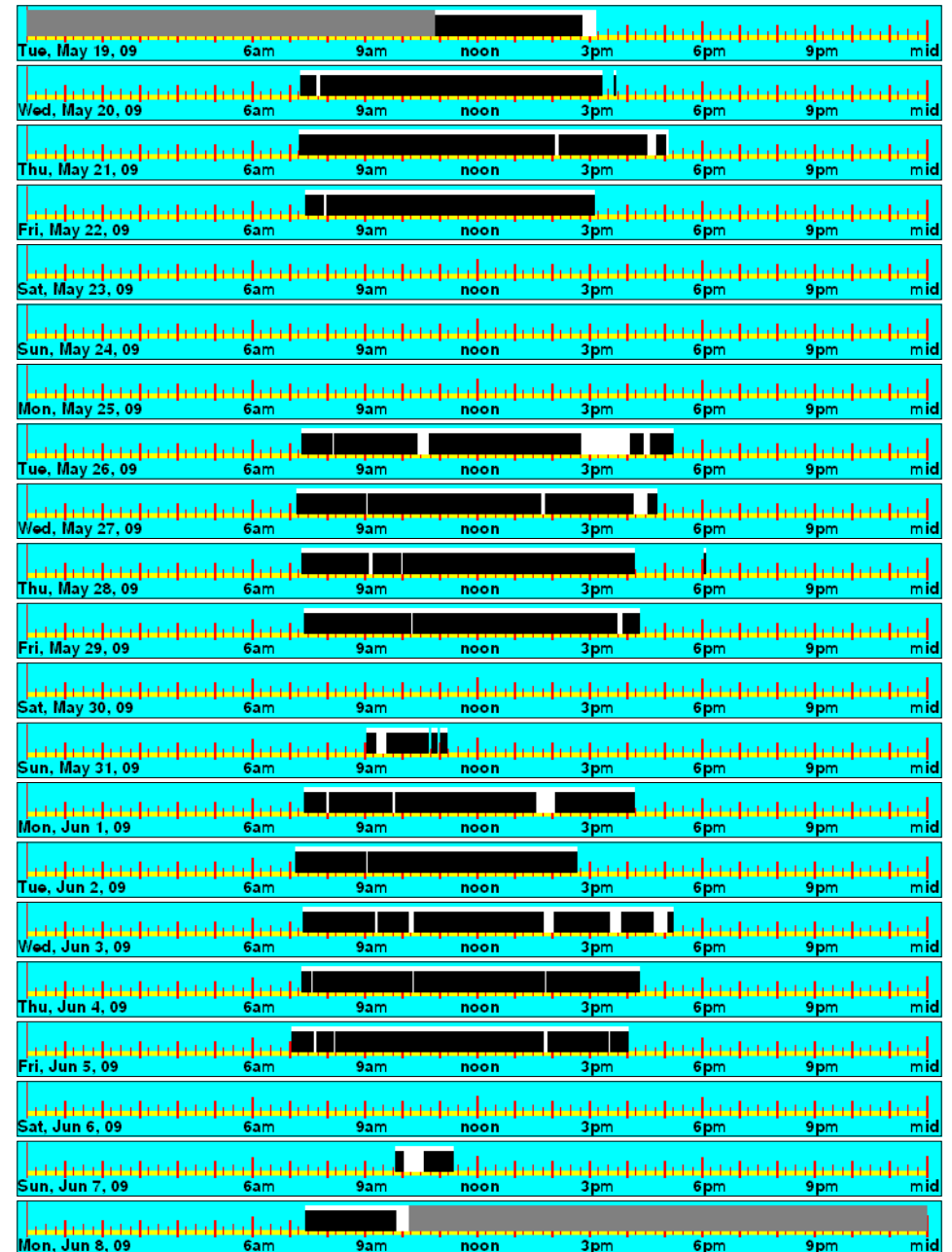
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	25.600	8.533	24.800	8.267
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	25.600	8.533	24.800	8.267

	Logged Totals			Normalized Totals		
Peak	117.550	109.267	479.300	41.203	38.299	7.0%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	117.550	109.267	479.300	41.203	38.299	7.0%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	1.156	0.867	4.763	4.302	8.511	7.542	9.178	8.478	9.244	8.933	8.533	8.267	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	1.156	0.867	4.763	4.302	8.511	7.542	9.178	8.478	9.244	8.933	8.533	8.267	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	117.550	109.267	479.300	^ ^ ^ ^	41.203	38.299	7.0%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	117.550	109.267	479.300		41.203	38.299	7.0%



ROOM 128

Area type: Classroom. Logger: 20945. Time delay 10 minutes. NORESKO, NEWTON - BROWN MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	61.067	24.000	19.367	7.611	16.567	6.511
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	61.067	24.000	19.367	7.611	16.567	6.511

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	22.800	7.600	18.367	6.122
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	22.800	7.600	18.367	6.122

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	58.683	24.000	9.133	3.735	8.167	3.340
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	58.683	24.000	9.133	3.735	8.167	3.340

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	21.600	7.200	20.733	6.911
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	21.600	7.200	20.733	6.911

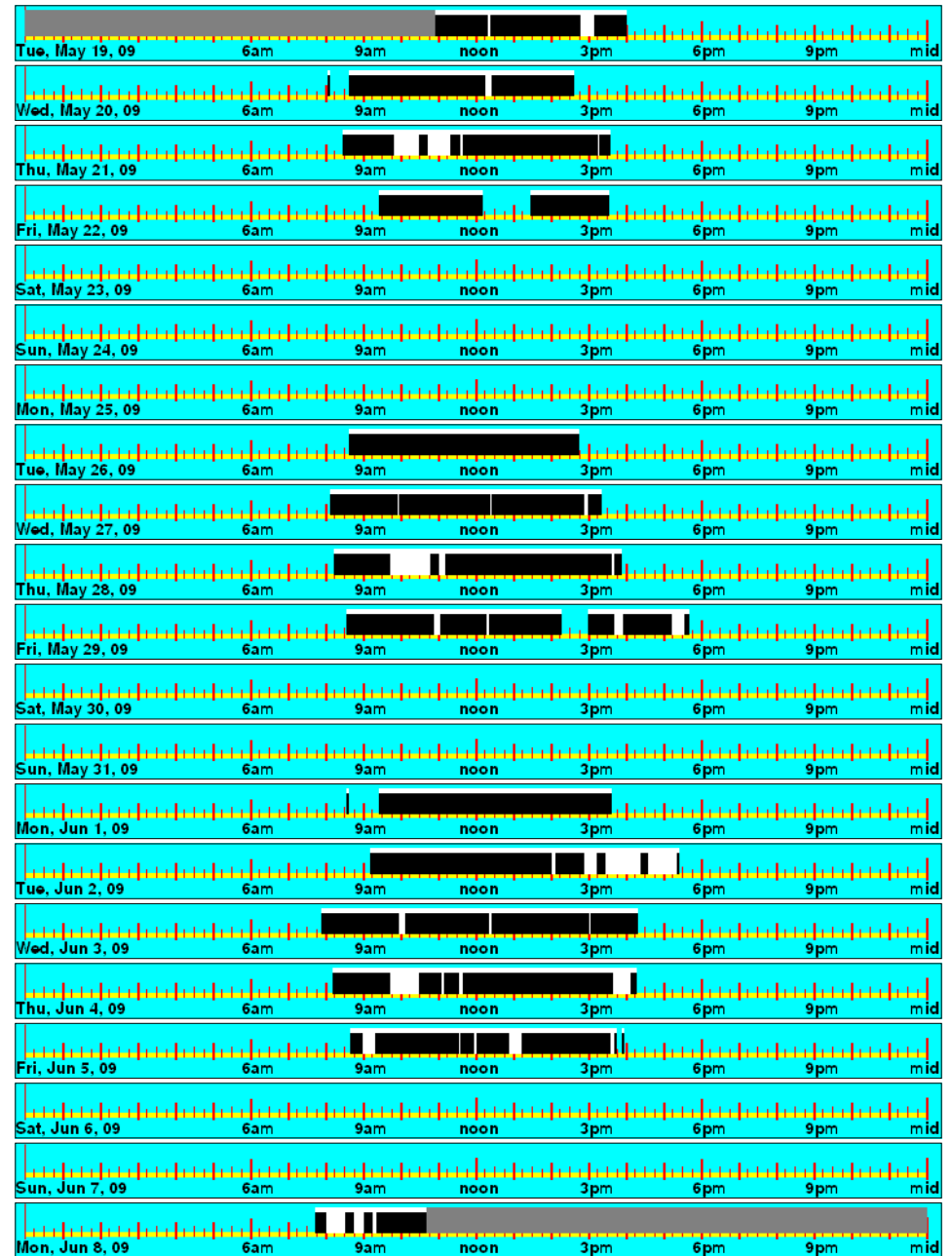
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	20.267	6.756	18.267	6.089
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	20.267	6.756	18.267	6.089

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	93.167	82.100	479.750	32.625	28.750	11.9%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	93.167	82.100	479.750	32.625	28.750	11.9%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	OCC	LO	OCC	LO	OCC	LO	OCC	LO	OCC	LO	OCC	LO	OCC
Peak	0.000	0.000	3.735	3.340	7.611	6.511	7.200	6.911	7.600	6.122	6.756	6.089	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	3.735	3.340	7.611	6.511	7.200	6.911	7.600	6.122	6.756	6.089	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	93.167	82.100	479.750	^ ^ ^ ^	32.625	28.750	11.9%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	93.167	82.100	479.750		32.625	28.750	11.9%



ROOM 129

Area type: Classroom. Logger: 23931. Time delay 10 minutes. NORESCO, NEWTON - BROWN MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	6.400	2.133	5.967	1.989
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	6.400	2.133	5.967	1.989

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	61.083	24.000	17.700	6.954	14.800	5.815
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	61.083	24.000	17.700	6.954	14.800	5.815

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	23.133	7.711	18.767	6.256
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	23.133	7.711	18.767	6.256

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	58.700	24.000	10.000	4.089	9.600	3.925
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	58.700	24.000	10.000	4.089	9.600	3.925

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	21.267	7.089	20.767	6.922
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	21.267	7.089	20.767	6.922

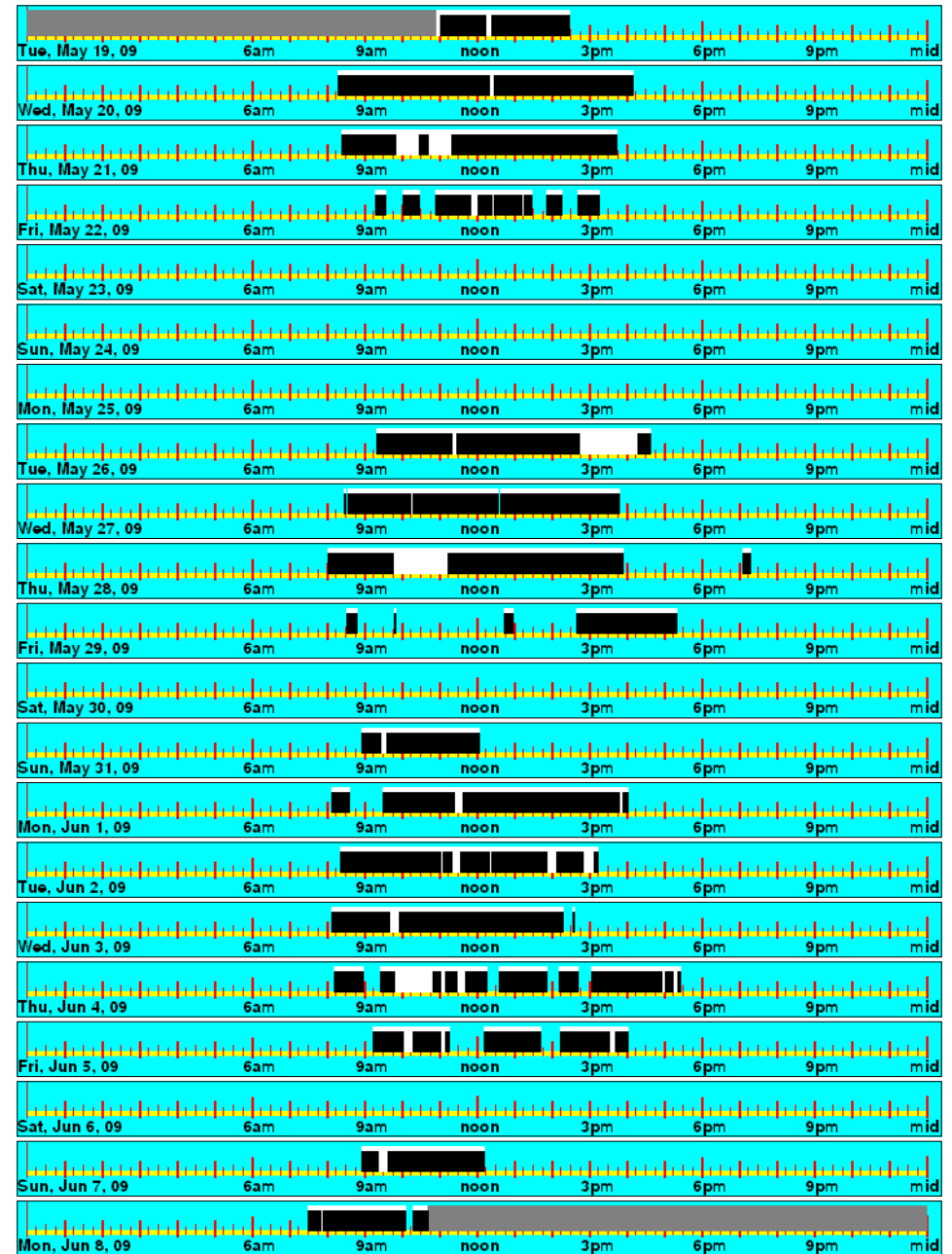
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	12.733	4.244	11.800	3.933
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	12.733	4.244	11.800	3.933

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	91.233	81.700	479.783	31.946	28.608	10.4%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	91.233	81.700	479.783	31.946	28.608	10.4%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	2.133	1.989	4.089	3.925	6.954	5.815	7.089	6.922	7.711	6.256	4.244	3.933	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	2.133	1.989	4.089	3.925	6.954	5.815	7.089	6.922	7.711	6.256	4.244	3.933	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	91.233	81.700	479.783	^ ^ ^ ^	31.946	28.608	10.4%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	91.233	81.700	479.783		31.946	28.608	10.4%



ROOM 133

Area type: Classroom. Logger: 22863. Time delay 10 minutes. NORESKO, NEWTON - BROWN MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	4.133	1.378	3.833	1.278
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	4.133	1.378	3.833	1.278

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	61.000	24.000	15.167	5.967	14.900	5.862
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	61.000	24.000	15.167	5.967	14.900	5.862

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	20.300	6.767	16.667	5.556
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	20.300	6.767	16.667	5.556

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	58.783	24.000	10.167	4.151	8.233	3.361
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	58.783	24.000	10.167	4.151	8.233	3.361

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	21.667	7.222	18.367	6.122
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	21.667	7.222	18.367	6.122

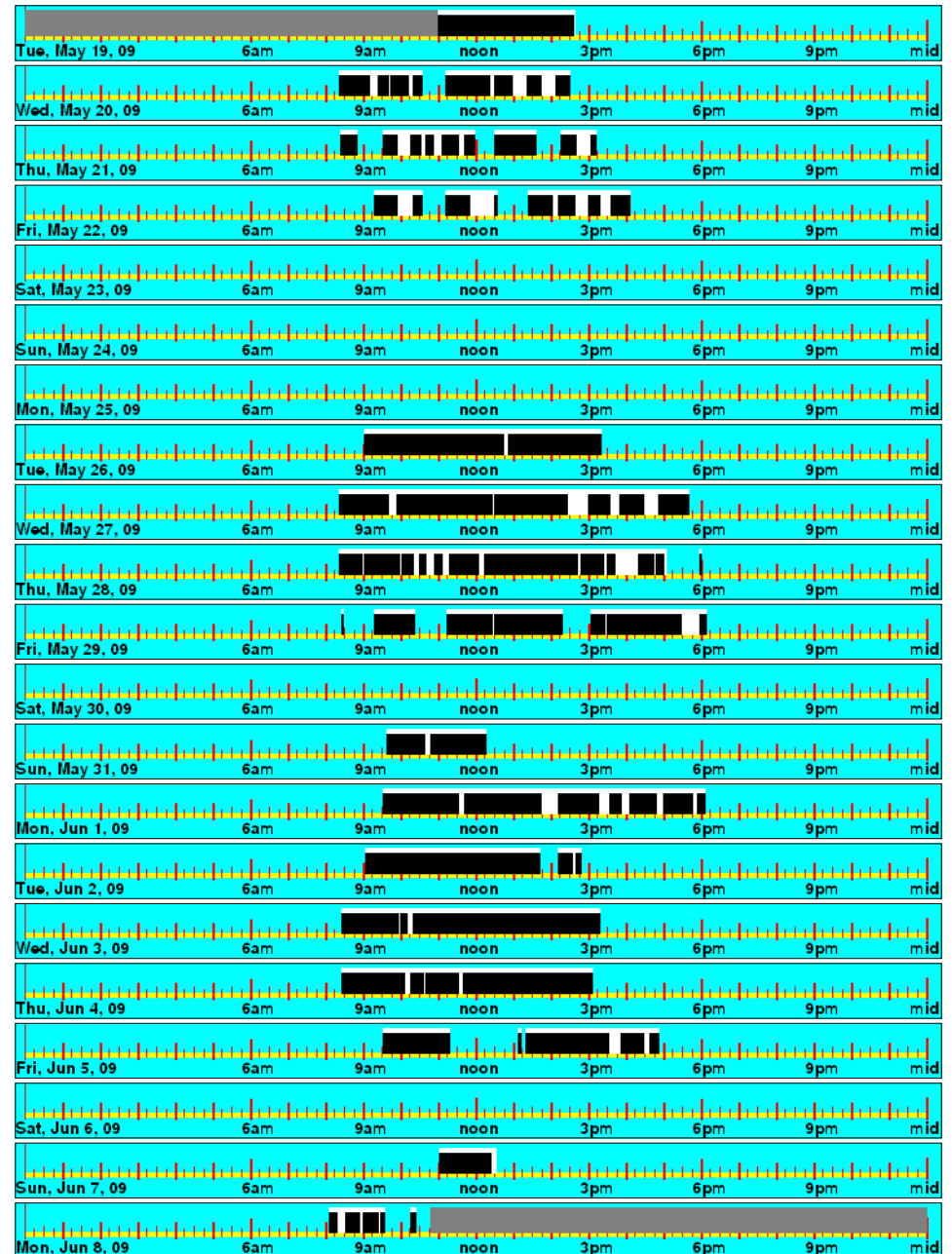
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	17.933	5.978	14.833	4.944
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	17.933	5.978	14.833	4.944

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	89.367	76.833	479.783	31.292	26.904	14.0%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	89.367	76.833	479.783	31.292	26.904	14.0%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	1.378	1.278	4.151	3.361	5.967	5.862	7.222	6.122	6.767	5.556	5.978	4.944	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	1.378	1.278	4.151	3.361	5.967	5.862	7.222	6.122	6.767	5.556	5.978	4.944	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	89.367	76.833	479.783	^ ^ ^ ^	31.292	26.904	14.0%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	89.367	76.833	479.783		31.292	26.904	14.0%



ROOM 144

Area type: Classroom. Logger: 24301. Time delay 10 minutes. NORESCO, NEWTON - BROWN MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	61.350	24.000	13.933	5.451	12.700	4.968
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	61.350	24.000	13.933	5.451	12.700	4.968

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	24.533	8.178	22.967	7.656
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	24.533	8.178	22.967	7.656

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	57.867	24.000	6.767	2.806	6.300	2.613
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	57.867	24.000	6.767	2.806	6.300	2.613

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	17.667	5.889	16.133	5.378
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	17.667	5.889	16.133	5.378

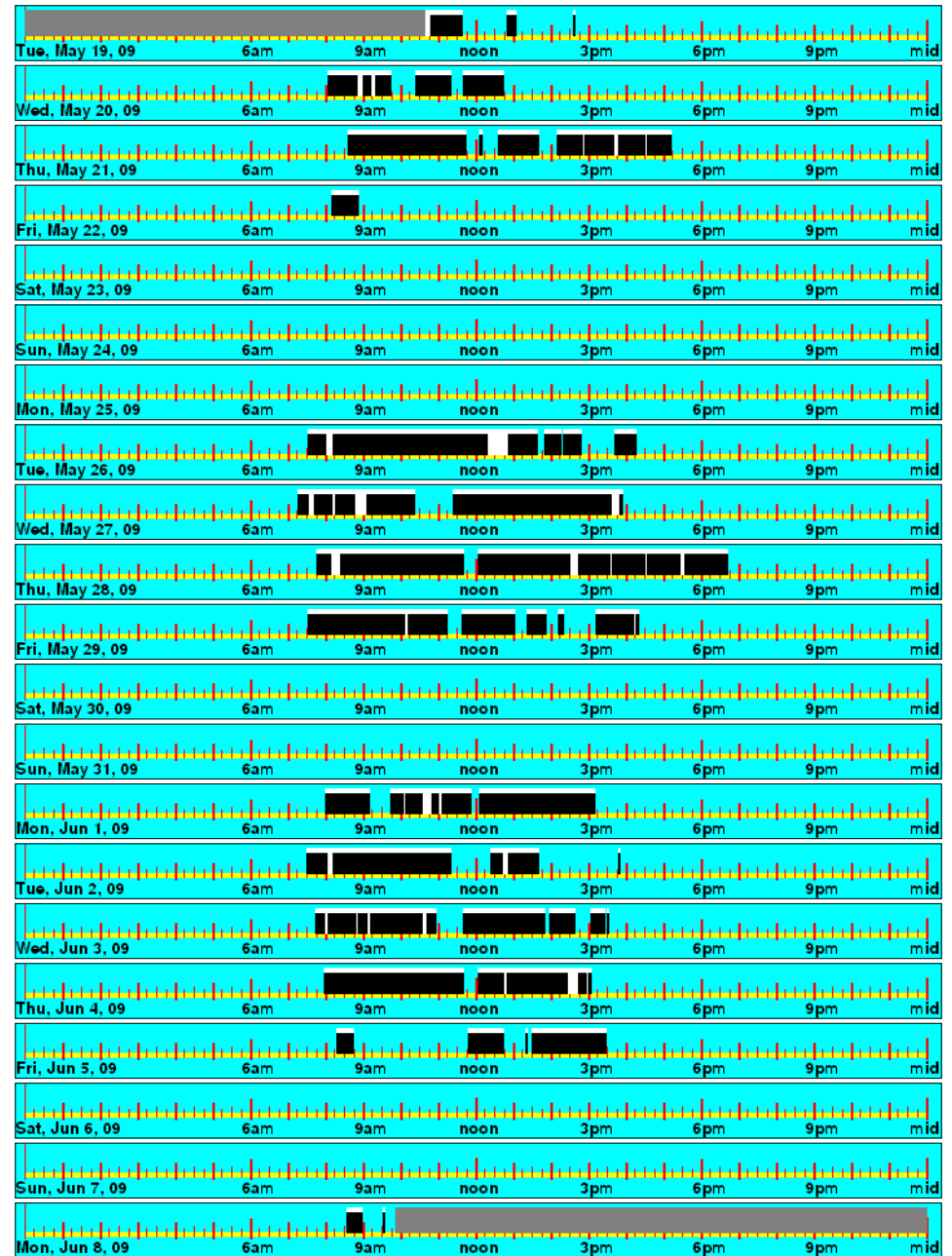
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	10.933	3.644	10.767	3.589
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	10.933	3.644	10.767	3.589

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	73.833	68.867	479.217	25.884	24.143	6.7%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	73.833	68.867	479.217	25.884	24.143	6.7%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	2.806	2.613	5.451	4.968	5.889	5.378	8.178	7.656	3.644	3.589	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	2.806	2.613	5.451	4.968	5.889	5.378	8.178	7.656	3.644	3.589	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	73.833	68.867	479.217	^ ^ ^ ^	25.884	24.143	6.7%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	73.833	68.867	479.217		25.884	24.143	6.7%



ROOM 147

Area type: Classroom. Logger: 21298. Time delay 10 minutes. NORESKO, NEWTON - BROWN MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	61.167	24.000	13.900	5.454	13.400	5.258
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	61.167	24.000	13.900	5.454	13.400	5.258

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	22.333	7.444	20.433	6.811
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	22.333	7.444	20.433	6.811

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	58.100	24.000	10.633	4.392	10.133	4.186
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	58.100	24.000	10.633	4.392	10.133	4.186

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	17.833	5.944	17.467	5.822
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	17.833	5.944	17.467	5.822

Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	15.967	5.322	15.533	5.178
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	15.967	5.322	15.533	5.178

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	80.667	76.967	479.267	28.277	26.980	4.6%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	80.667	76.967	479.267	28.277	26.980	4.6%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	4.392	4.186	5.454	5.258	5.944	5.822	7.444	6.811	5.322	5.178	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	4.392	4.186	5.454	5.258	5.944	5.822	7.444	6.811	5.322	5.178	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	80.667	76.967	479.267	^ ^ ^ ^	28.277	26.980	4.6%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	80.667	76.967	479.267		28.277	26.980	4.6%



ROOM 204

Area type: Classroom. Logger: 24251. Time delay 10 minutes. NORESKO, NEWTON - BROWN MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	60.817	24.000	16.000	6.314	13.400	5.288
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	60.817	24.000	16.000	6.314	13.400	5.288

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	14.033	4.678	11.167	3.722
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	14.033	4.678	11.167	3.722

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	59.050	24.000	7.333	2.981	5.500	2.235
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	59.050	24.000	7.333	2.981	5.500	2.235

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	12.467	4.156	11.067	3.689
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	12.467	4.156	11.067	3.689

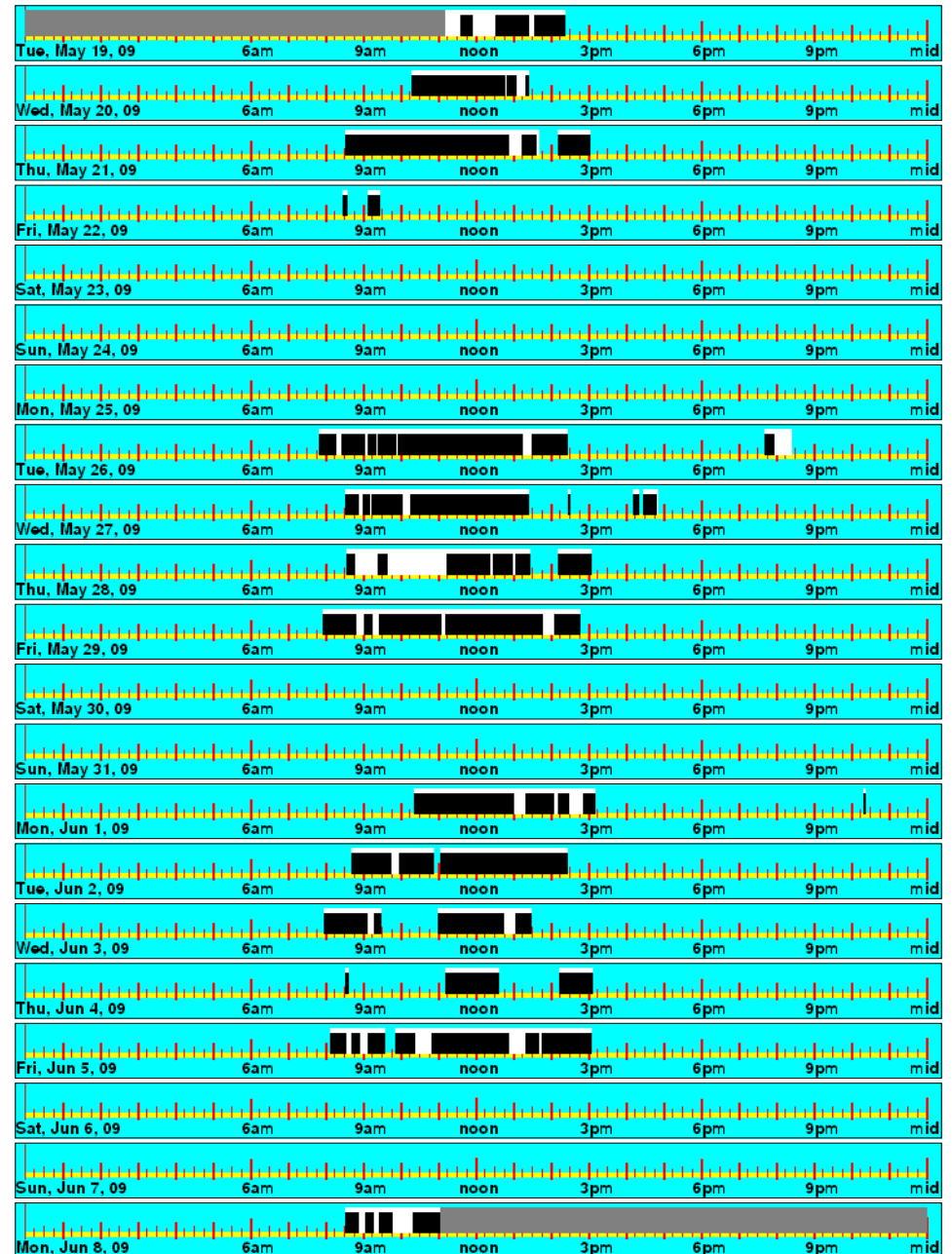
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	13.867	4.622	11.533	3.844
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	13.867	4.622	11.533	3.844

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	63.700	52.667	479.867	22.301	18.438	17.3%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	63.700	52.667	479.867	22.301	18.438	17.3%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	2.981	2.235	6.314	5.288	4.156	3.689	4.678	3.722	4.622	3.844	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	2.981	2.235	6.314	5.288	4.156	3.689	4.678	3.722	4.622	3.844	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	63.700	52.667	479.867	^ ^ ^ ^	22.301	18.438	17.3%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	63.700	52.667	479.867		22.301	18.438	17.3%



ROOM 205 - WORK ROOM

Area type: Meeting Rooms. Logger: 23657. Time delay 10 minutes. NORESCO, NEWTON - BROWN MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	60.800	24.000	17.333	6.842	17.233	6.803
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	60.800	24.000	17.333	6.842	17.233	6.803

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	17.600	5.867	17.600	5.867
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	17.600	5.867	17.600	5.867

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	59.067	24.000	9.450	3.840	7.683	3.122
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	59.067	24.000	9.450	3.840	7.683	3.122

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	20.933	6.978	19.733	6.578
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	20.933	6.978	19.733	6.578

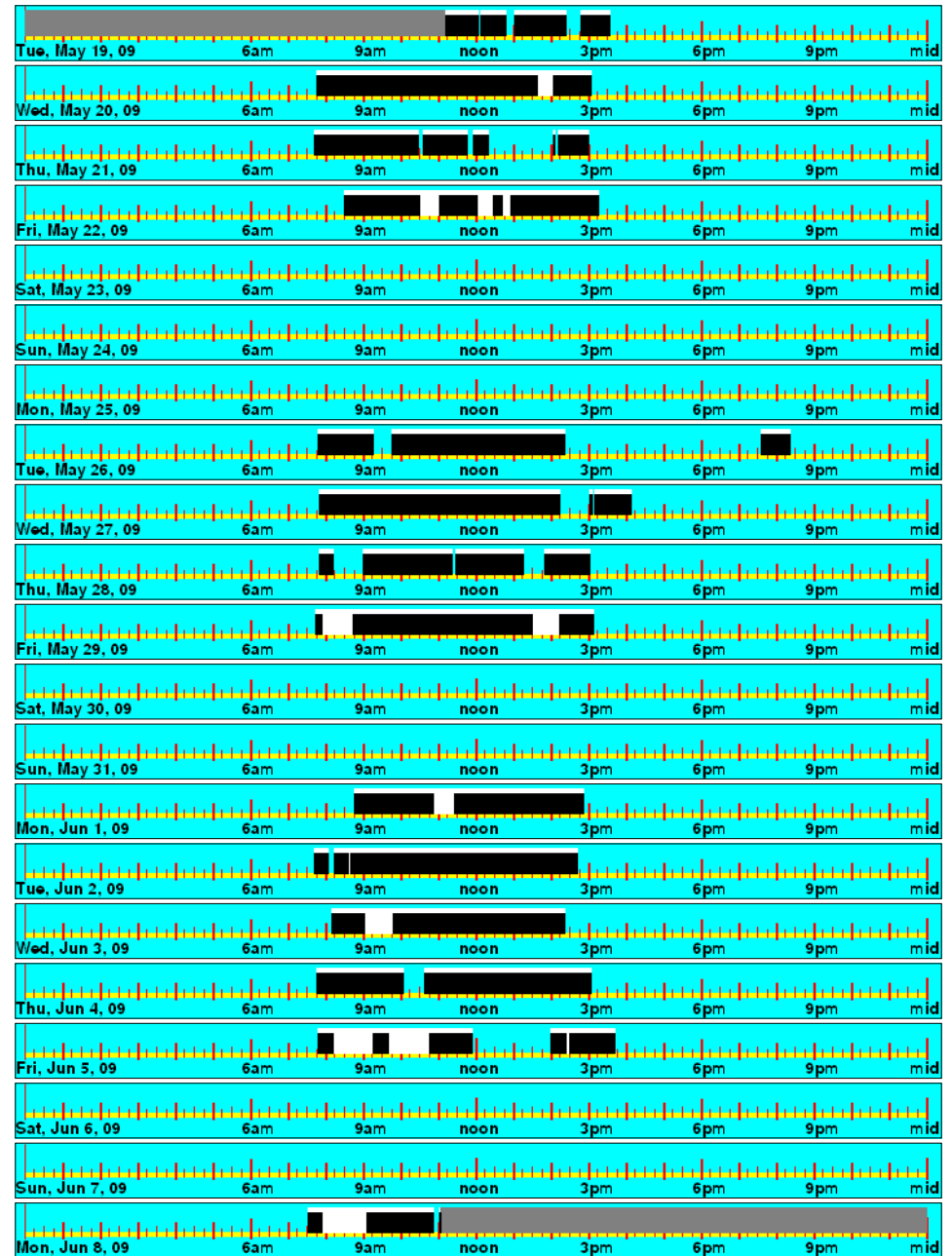
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	19.967	6.656	14.900	4.967
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	19.967	6.656	14.900	4.967

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	85.283	77.150	479.867	29.857	27.010	9.5%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	85.283	77.150	479.867	29.857	27.010	9.5%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	3.840	3.122	6.842	6.803	6.978	6.578	5.867	5.867	6.656	4.967	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	3.840	3.122	6.842	6.803	6.978	6.578	5.867	5.867	6.656	4.967	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	85.283	77.150	479.867	^ ^ ^ ^	29.857	27.010	9.5%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	85.283	77.150	479.867		29.857	27.010	9.5%



ROOM 208

Area type: Classroom. Logger: 22887. Time delay 10 minutes. NORESKO, NEWTON - BROWN MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	60.767	24.000	19.433	7.675	16.300	6.438
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	60.767	24.000	19.433	7.675	16.300	6.438

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	19.200	6.400	18.067	6.022
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	19.200	6.400	18.067	6.022

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	59.083	24.000	3.500	1.422	3.500	1.422
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	59.083	24.000	3.500	1.422	3.500	1.422

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	26.033	8.678	21.833	7.278
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	26.033	8.678	21.833	7.278

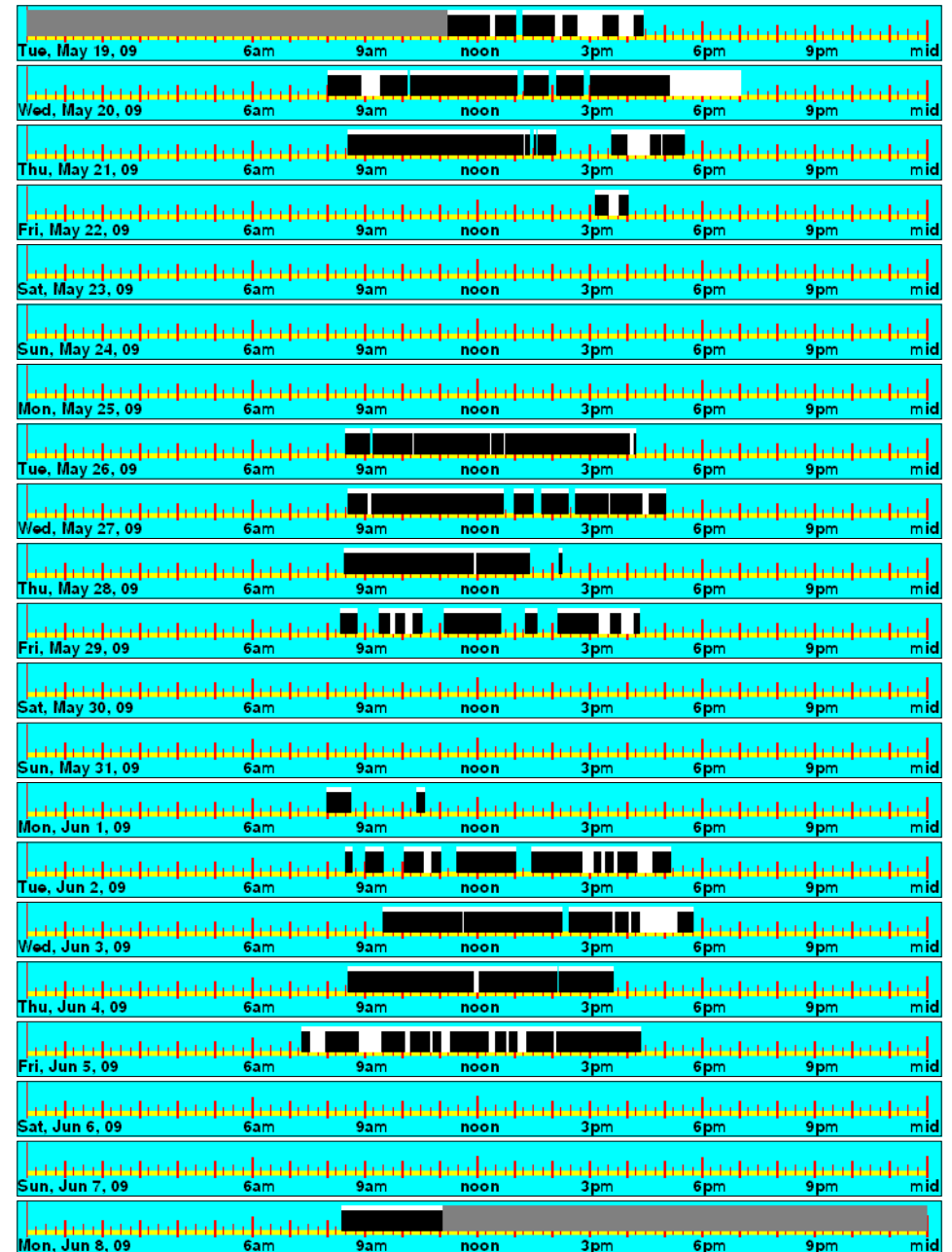
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	15.400	5.133	11.700	3.900
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	15.400	5.133	11.700	3.900

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	83.567	71.400	479.850	29.257	24.998	14.6%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	83.567	71.400	479.850	29.257	24.998	14.6%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	1.422	1.422	7.675	6.438	8.678	7.278	6.400	6.022	5.133	3.900	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	1.422	1.422	7.675	6.438	8.678	7.278	6.400	6.022	5.133	3.900	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	83.567	71.400	479.850	^ ^ ^ ^	29.257	24.998	14.6%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	83.567	71.400	479.850		29.257	24.998	14.6%



ROOM 229B

Area type: Classroom. Logger: 23609. Time delay 10 minutes. NORESCO, NEWTON - BROWN MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	60.683	24.000	14.767	5.840	8.533	3.375
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	60.683	24.000	14.767	5.840	8.533	3.375

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	22.533	7.511	18.700	6.233
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	22.533	7.511	18.700	6.233

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	59.150	24.000	3.217	1.305	2.117	0.859
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	59.150	24.000	3.217	1.305	2.117	0.859

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	21.367	7.122	18.200	6.067
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	21.367	7.122	18.200	6.067

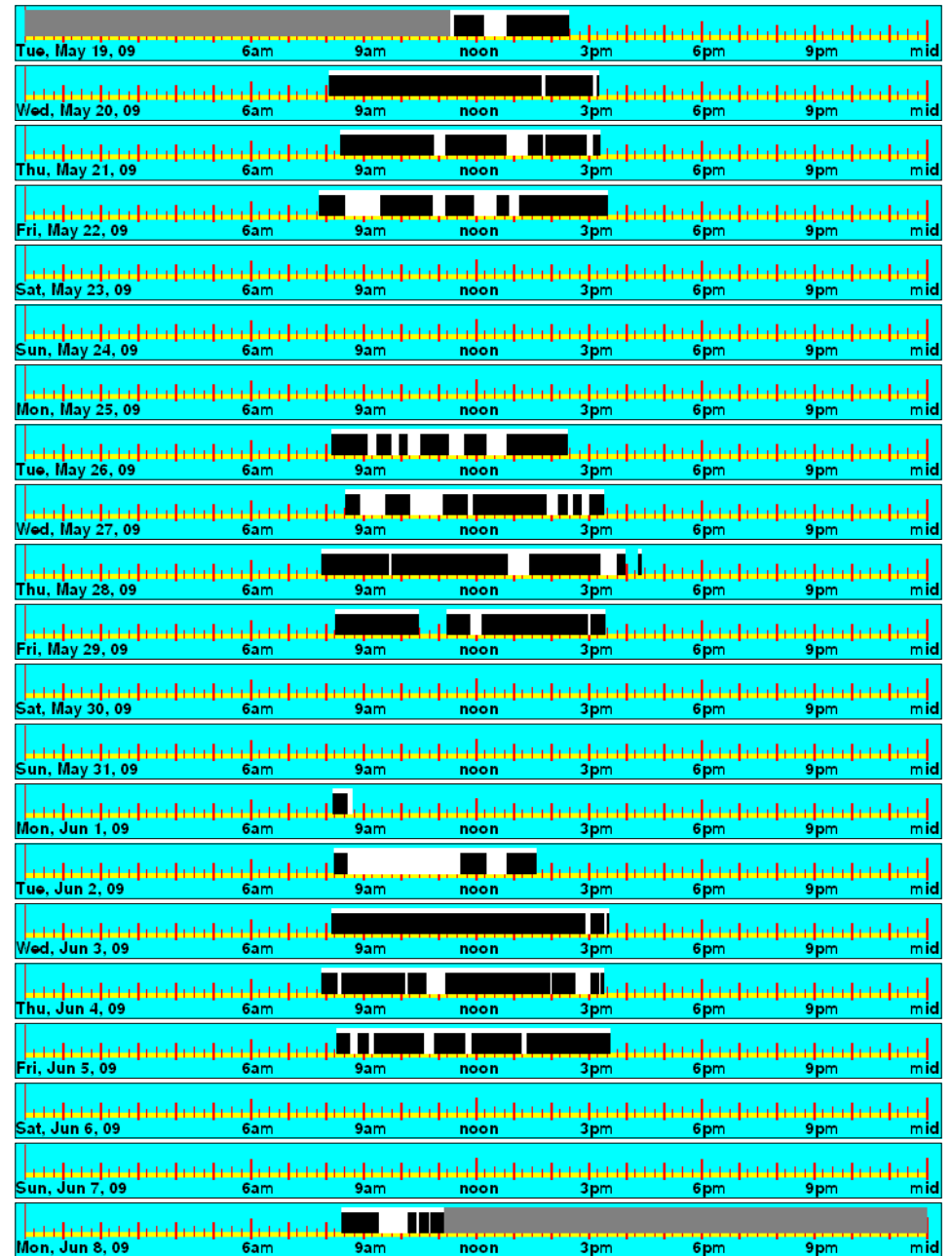
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	21.333	7.111	17.533	5.844
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	21.333	7.111	17.533	5.844

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	83.217	65.083	479.833	29.136	22.787	21.8%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	83.217	65.083	479.833	29.136	22.787	21.8%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	1.305	0.859	5.840	3.375	7.122	6.067	7.511	6.233	7.111	5.844	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	1.305	0.859	5.840	3.375	7.122	6.067	7.511	6.233	7.111	5.844	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	83.217	65.083	479.833	^ ^ ^ ^	29.136	22.787	21.8%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	83.217	65.083	479.833		29.136	22.787	21.8%



ROOM 230 - ART

Area type: Classroom. Logger: 24469. Time delay 10 minutes. NORESCO, NEWTON - BROWN MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	60.700	24.000	13.767	5.443	12.033	4.758
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	60.700	24.000	13.767	5.443	12.033	4.758

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	18.200	6.067	15.333	5.111
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	18.200	6.067	15.333	5.111

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	59.233	24.000	9.833	3.984	9.400	3.809
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	59.233	24.000	9.833	3.984	9.400	3.809

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	19.433	6.478	15.867	5.289
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	19.433	6.478	15.867	5.289

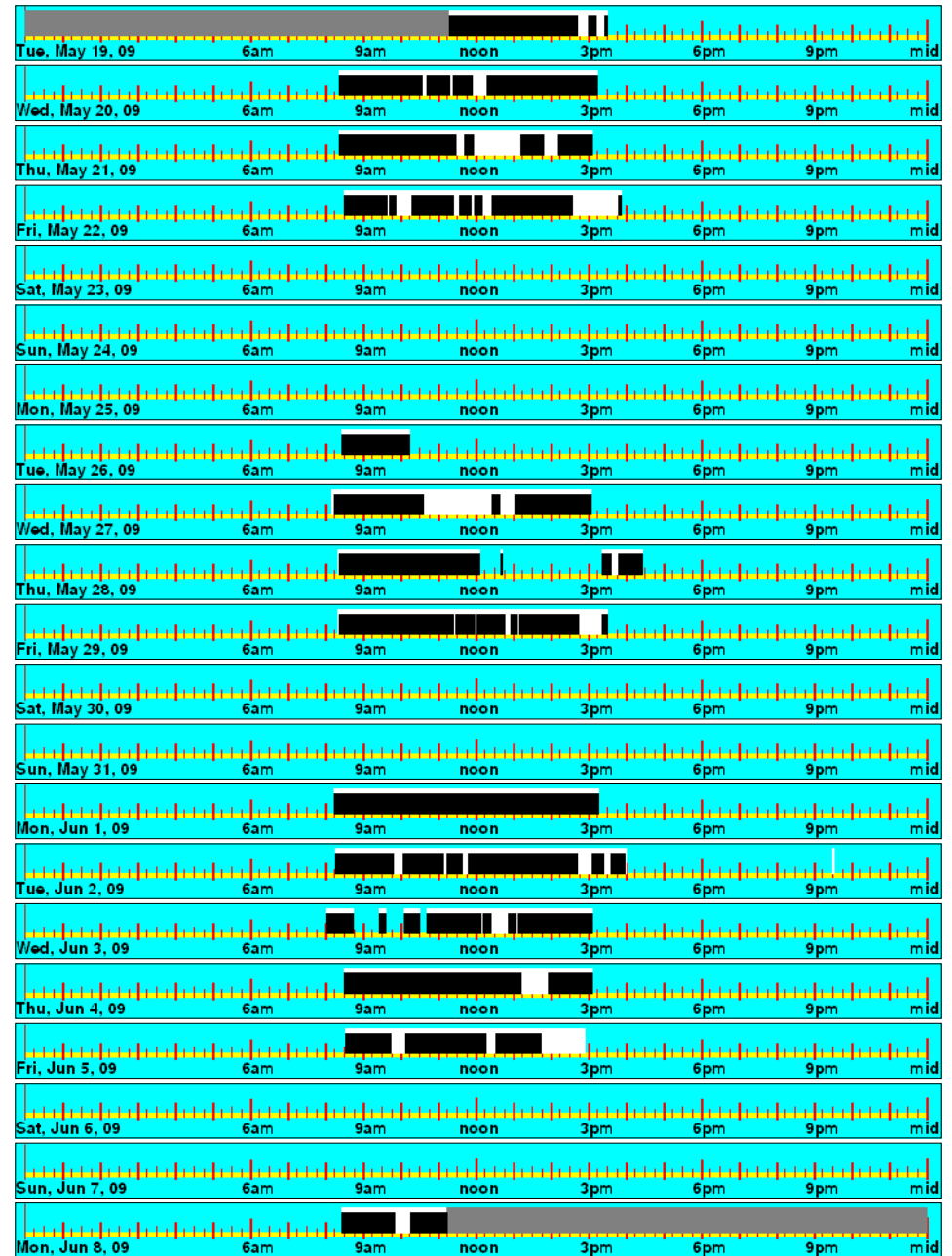
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	20.900	6.967	15.733	5.244
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	20.900	6.967	15.733	5.244

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	82.133	68.367	479.933	28.751	23.932	16.8%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	82.133	68.367	479.933	28.751	23.932	16.8%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	3.984	3.809	5.443	4.758	6.478	5.289	6.067	5.111	6.967	5.244	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	3.984	3.809	5.443	4.758	6.478	5.289	6.067	5.111	6.967	5.244	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	82.133	68.367	479.933	^ ^ ^ ^	28.751	23.932	16.8%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	82.133	68.367	479.933		28.751	23.932	16.8%



ROOM 232

Area type: Classroom. Logger: 20627. Time delay 10 minutes. NORESKO, NEWTON - BROWN MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	60.667	24.000	14.400	5.697	13.667	5.407
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	60.667	24.000	14.400	5.697	13.667	5.407

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	21.100	7.033	19.500	6.500
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	21.100	7.033	19.500	6.500

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	59.250	24.000	10.367	4.199	10.067	4.078
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	59.250	24.000	10.367	4.199	10.067	4.078

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	20.067	6.689	19.533	6.511
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	20.067	6.689	19.533	6.511

Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	17.133	5.711	15.667	5.222
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	17.133	5.711	15.667	5.222

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	83.067	78.433	479.917	29.078	27.456	5.6%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	83.067	78.433	479.917	29.078	27.456	5.6%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	4.199	4.078	5.697	5.407	6.689	6.511	7.033	6.500	5.711	5.222	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	4.199	4.078	5.697	5.407	6.689	6.511	7.033	6.500	5.711	5.222	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	83.067	78.433	479.917	^ ^ ^ ^	29.078	27.456	5.6%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	83.067	78.433	479.917		29.078	27.456	5.6%



ROOM Z - OUTSIDE STAGE

Area type: Hallway. Logger: 25043. Time delay 10 minutes. NORESKO, NEWTON - BROWN MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	72.000	24.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	72.000	24.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	60.500	24.000	60.500	24.000	0.800	0.317
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	60.500	24.000	60.500	24.000	0.800	0.317

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	72.000	24.000	0.400	0.133
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	72.000	24.000	0.400	0.133

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	72.000	24.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	72.000	24.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	58.517	24.000	58.500	23.993	4.333	1.777
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	58.517	24.000	58.500	23.993	4.333	1.777

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	72.000	24.000	8.133	2.711
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	72.000	24.000	8.133	2.711

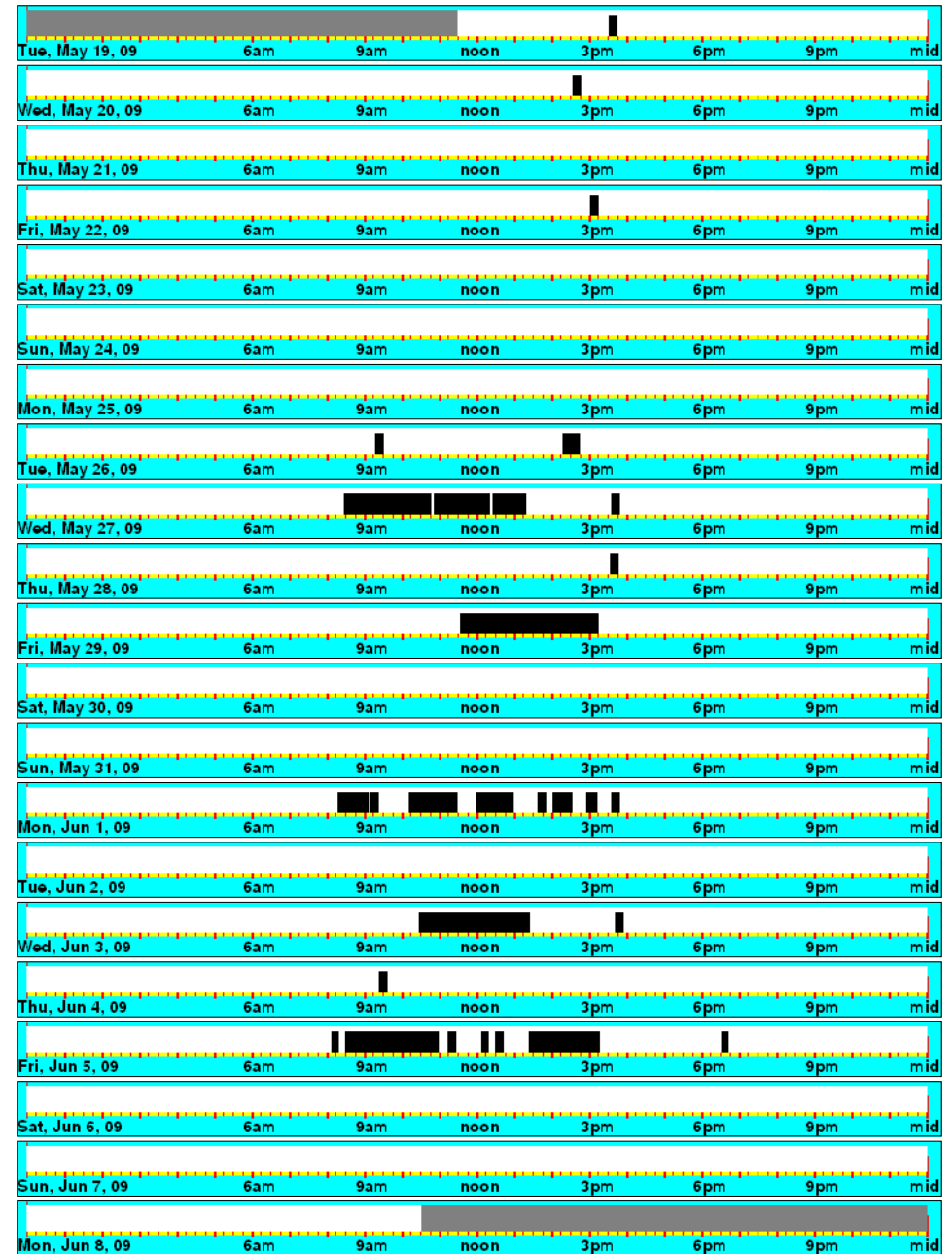
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	72.000	24.000	9.100	3.033
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	72.000	24.000	9.100	3.033

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	479.000	22.767	479.017	167.994	7.985	95.2%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	479.000	22.767	479.017	167.994	7.985	95.2%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	24.000	0.000	23.993	1.777	24.000	0.317	24.000	2.711	24.000	0.133	24.000	3.033	24.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	24.000	0.000	23.993	1.777	24.000	0.317	24.000	2.711	24.000	0.133	24.000	3.033	24.000	0.000

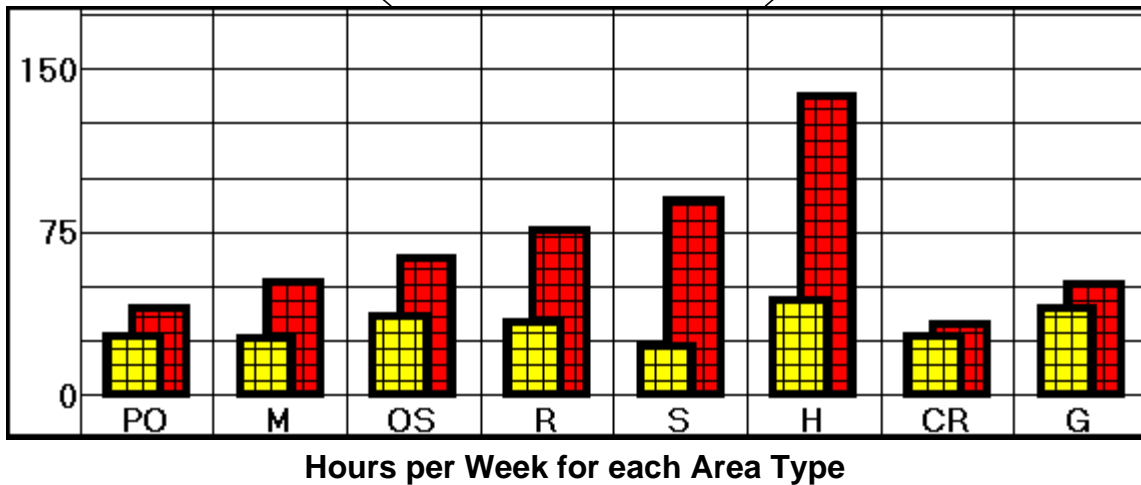
	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	479.000	22.767	479.017	^ ^ ^ ^	167.994	7.985	95.2%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	479.000	22.767	479.017		167.994	7.985	95.2%



Area Type Averages

NORESCO, NEWTON - OAK HILL MIDDLE SCHOOL

Area Type Averages				Normalized Weekly Lights On					Normalized Weekly Occupied					
Area Type		Qty	Watts	Peak	Off	Shldr 1	Shldr 2	Total	Peak	Off	Shldr 1	Shldr 2	Total	% sav
Private Office	PO	4	143	39.92	0.00	0.00	0.00	39.92	26.82	0.00	0.00	0.00	26.82	32.82%
Meeting Rooms	M	1	180	51.55	0.00	0.00	0.00	51.55	25.77	0.00	0.00	0.00	25.77	50.01%
Open Space	OS	4	1440	62.88	0.00	0.00	0.00	62.88	36.10	0.00	0.00	0.00	36.10	42.59%
Restroom	R	4	150	75.98	0.00	0.00	0.00	75.98	33.09	0.00	0.00	0.00	33.09	56.45%
Storage	S	5	246	89.46	0.00	0.00	0.00	89.46	22.37	0.00	0.00	0.00	22.37	74.99%
Hallway	H	4	705	136.80	0.00	0.00	0.00	136.80	43.58	0.00	0.00	0.00	43.58	68.14%
Classroom	CR	5	702	32.54	0.00	0.00	0.00	32.54	26.53	0.00	0.00	0.00	26.53	18.47%
Gym	G	1	1700	50.70	0.00	0.00	0.00	50.70	39.38	0.00	0.00	0.00	39.38	22.33%
Building Average			16372	69.39			0.00	69.39	34.10			0.00	34.10	50.86%



Data Logger Detail for NORESCO, NEWTON - OAK HILL MIDDLE SCHOOL Page 1 of 1

All Loggers Listed			Hours Installed							Lights On				Occupied					
Logger	Room Location	Ty	Total	Peak	Off	Shldr 1	Shldr 2	Installed	Removed	Peak	Off	Shldr 1	Shldr 2	Total	Peak	Off	Shldr 1	Shldr 2	Total
23723	204 STORAGE	S	478.07	478.07	0.00	0.00	0.00	5/19/09 3:28 PM	6/08/09 1:31 PM	77.60	0.00	0.00	0.00	77.60	17.03	0.00	0.00	0.00	17.03
24965	BOYS ROOM - BY MUSIC	R	478.00	478.00	0.00	0.00	0.00	5/19/09 3:14 PM	6/08/09 1:13 PM	81.93	0.00	0.00	0.00	81.93	21.17	0.00	0.00	0.00	21.17
22481	CAFE	OS	477.40	477.40	0.00	0.00	0.00	5/19/09 2:26 PM	6/08/09 11:49 AM	136.42	0.00	0.00	0.00	136.42	126.22	0.00	0.00	0.00	126.22
23316	CUSTODIANS OFFICE	S	477.43	477.43	0.00	0.00	0.00	5/19/09 2:29 PM	6/08/09 11:54 AM	477.42	0.00	0.00	0.00	477.42	120.90	0.00	0.00	0.00	120.90
23335	GYM	G	477.52	477.52	0.00	0.00	0.00	5/19/09 2:42 PM	6/08/09 12:12 PM	144.10	0.00	0.00	0.00	144.10	111.93	0.00	0.00	0.00	111.93
20682	HALL - OUTSIDE ROOM 243	H	477.75	477.75	0.00	0.00	0.00	5/19/09 3:06 PM	6/08/09 12:50 PM	477.73	0.00	0.00	0.00	477.73	110.00	0.00	0.00	0.00	110.00
22642	HALL B Y ROOM 119A	H	477.47	477.47	0.00	0.00	0.00	5/19/09 2:34 PM	6/08/09 12:01 PM	477.45	0.00	0.00	0.00	477.45	148.53	0.00	0.00	0.00	148.53
23245	HALL BY BATHS	H	477.48	477.48	0.00	0.00	0.00	5/19/09 2:52 PM	6/08/09 12:20 PM	470.73	0.00	0.00	0.00	470.73	156.90	0.00	0.00	0.00	156.90
21125	HALL BY ROOM 10	H	477.35	477.35	0.00	0.00	0.00	5/19/09 3:38 PM	6/08/09 12:58 PM	129.50	0.00	0.00	0.00	129.50	80.00	0.00	0.00	0.00	80.00
24956	MAIN ENTRANCE	OS	478.77	478.77	0.00	0.00	0.00	5/19/09 2:48 PM	6/08/09 1:33 PM	81.97	0.00	0.00	0.00	81.97	52.37	0.00	0.00	0.00	52.37
21476	MAIN OFFICE	OS	477.42	477.42	0.00	0.00	0.00	5/19/09 2:17 PM	6/08/09 11:41 AM	137.27	0.00	0.00	0.00	137.27	131.73	0.00	0.00	0.00	131.73
22109	MAIN OFFICE - MR YEE	PO	477.42	477.42	0.00	0.00	0.00	5/19/09 2:20 PM	6/08/09 11:44 AM	127.03	0.00	0.00	0.00	127.03	92.93	0.00	0.00	0.00	92.93
23237	MAIN OFFICE - ROOM 137	PO	477.38	477.38	0.00	0.00	0.00	5/19/09 2:22 PM	6/08/09 11:44 AM	112.33	0.00	0.00	0.00	112.33	65.20	0.00	0.00	0.00	65.20
21843	MAIN OFFICE - ROOM 140	PO	477.42	477.42	0.00	0.00	0.00	5/19/09 2:19 PM	6/08/09 11:43 AM	102.03	0.00	0.00	0.00	102.03	45.30	0.00	0.00	0.00	45.30
24107	MUSIC ROOM	CR	477.68	477.68	0.00	0.00	0.00	5/19/09 3:17 PM	6/08/09 12:57 PM	101.73	0.00	0.00	0.00	101.73	72.42	0.00	0.00	0.00	72.42
22544	NURSE OFFICE	PO	476.20	476.20	0.00	0.00	0.00	5/19/09 3:35 PM	6/08/09 11:46 AM	112.13	0.00	0.00	0.00	112.13	101.13	0.00	0.00	0.00	101.13
21196	ROOM 10	CR	461.32	461.32	0.00	0.00	0.00	5/20/09 7:42 AM	6/08/09 1:00 PM	97.13	0.00	0.00	0.00	97.13	87.63	0.00	0.00	0.00	87.63
20920	ROOM 102 - BOYS ROOM	R	477.47	477.47	0.00	0.00	0.00	5/19/09 2:39 PM	6/08/09 12:06 PM	202.72	0.00	0.00	0.00	202.72	109.28	0.00	0.00	0.00	109.28
23748	ROOM 104 CUSTODIAN	S	476.13	476.13	0.00	0.00	0.00	5/19/09 3:44 PM	6/08/09 11:51 AM	194.25	0.00	0.00	0.00	194.25	146.78	0.00	0.00	0.00	146.78
20637	ROOM 119A	M	477.47	477.47	0.00	0.00	0.00	5/19/09 2:32 PM	6/08/09 11:59 AM	146.50	0.00	0.00	0.00	146.50	73.23	0.00	0.00	0.00	73.23
23653	ROOM 11A	CR	478.02	478.02	0.00	0.00	0.00	5/19/09 3:11 PM	6/08/09 1:11 PM	91.45	0.00	0.00	0.00	91.45	65.03	0.00	0.00	0.00	65.03
24222	ROOM 12 CUSTODIAN	S	163.95	163.95	0.00	0.00	0.00	6/01/09 4:55 PM	6/08/09 12:51 PM	121.37	0.00	0.00	0.00	121.37	0.03	0.00	0.00	0.00	0.03
22549	ROOM 126	CR	477.45	477.45	0.00	0.00	0.00	5/19/09 2:31 PM	6/08/09 11:57 AM	92.47	0.00	0.00	0.00	92.47	79.57	0.00	0.00	0.00	79.57
21748	ROOM 202 - GIRLS ROOM	R	477.92	477.92	0.00	0.00	0.00	5/19/09 2:50 PM	6/08/09 12:44 PM	101.88	0.00	0.00	0.00	101.88	64.55	0.00	0.00	0.00	64.55
24955	ROOM 203 - BOYS ROOM	R	477.70	477.70	0.00	0.00	0.00	5/19/09 3:21 PM	6/08/09 1:02 PM	477.68	0.00	0.00	0.00	477.68	181.35	0.00	0.00	0.00	181.35
23712	ROOM 218A	S	477.50	477.50	0.00	0.00	0.00	5/19/09 2:45 PM	6/08/09 12:14 PM	168.13	0.00	0.00	0.00	168.13	32.67	0.00	0.00	0.00	32.67
23144	ROOM 222 - MEDIA CENTER	OS	477.67	477.67	0.00	0.00	0.00	5/19/09 2:53 PM	6/08/09 12:32 PM	359.48	0.00	0.00	0.00	359.48	100.17	0.00	0.00	0.00	100.17
24894	ROOM 235	CR	477.67	477.67	0.00	0.00	0.00	5/19/09 2:57 PM	6/08/09 12:36 PM	76.40	0.00	0.00	0.00	76.40	69.43	0.00	0.00	0.00	69.43

Normalized Data Logger Detail for NORESCO, NEWTON - OAK HILL MIDDLE SCHOOL Page 1 of 1

All Loggers Listed			Load	Normalized Weekly Hours of Use					Normalized Weekly Hours of Occupancy					
Logger	Room Location	Ty	Watts	Peak	Off	Shldr 1	Shldr 2	Total	Peak	Off	Shldr 1	Shldr 2	Total	% sav
23723	204 STORAGE	S	60	27.27	0.00	0.00	0.00	27.27	5.99	0.00	0.00	0.00	5.99	78.03%
24965	BOYS ROOM -	R	120	28.80	0.00	0.00	0.00	28.80	7.44	0.00	0.00	0.00	7.44	74.17%
22481	CAFE	OS	2490	48.01	0.00	0.00	0.00	48.01	44.42	0.00	0.00	0.00	44.42	7.48%
23316	CUSTODIANS	S	360	167.99	0.00	0.00	0.00	167.99	42.54	0.00	0.00	0.00	42.54	74.68%
23335	GYM	G	1700	50.70	0.00	0.00	0.00	50.70	39.38	0.00	0.00	0.00	39.38	22.33%
20682	HALL -	H	720	167.99	0.00	0.00	0.00	167.99	38.68	0.00	0.00	0.00	38.68	76.97%
22642	HALL B Y	H	420	167.99	0.00	0.00	0.00	167.99	52.26	0.00	0.00	0.00	52.26	68.89%
23245	HALL BY	H	1080	165.63	0.00	0.00	0.00	165.63	55.20	0.00	0.00	0.00	55.20	66.67%
21125	HALL BY	H	600	45.58	0.00	0.00	0.00	45.58	28.16	0.00	0.00	0.00	28.16	38.22%
24956	MAIN	OS	600	28.76	0.00	0.00	0.00	28.76	18.38	0.00	0.00	0.00	18.38	36.09%
21476	MAIN OFFICE	OS	510	48.30	0.00	0.00	0.00	48.30	46.36	0.00	0.00	0.00	46.36	4.02%
22109	MAIN OFFICE -	PO	180	44.70	0.00	0.00	0.00	44.70	32.70	0.00	0.00	0.00	32.70	26.85%
23237	MAIN OFFICE -	PO	180	39.53	0.00	0.00	0.00	39.53	22.95	0.00	0.00	0.00	22.95	41.94%
21843	MAIN OFFICE -	PO	90	35.90	0.00	0.00	0.00	35.90	15.94	0.00	0.00	0.00	15.94	55.60%
24107	MUSIC ROOM	CR	1080	35.78	0.00	0.00	0.00	35.78	25.47	0.00	0.00	0.00	25.47	28.81%
22544	NURSE	PO	120	39.56	0.00	0.00	0.00	39.56	35.68	0.00	0.00	0.00	35.68	9.81%
21196	ROOM 10	CR	720	35.37	0.00	0.00	0.00	35.37	31.91	0.00	0.00	0.00	31.91	9.78%
20920	ROOM 102 -	R	120	71.33	0.00	0.00	0.00	71.33	38.45	0.00	0.00	0.00	38.45	46.10%
23748	ROOM 104	S	60	68.54	0.00	0.00	0.00	68.54	51.79	0.00	0.00	0.00	51.79	24.44%
20637	ROOM 119A	M	180	51.55	0.00	0.00	0.00	51.55	25.77	0.00	0.00	0.00	25.77	50.01%
23653	ROOM 11A	CR	450	32.14	0.00	0.00	0.00	32.14	22.86	0.00	0.00	0.00	22.86	28.87%
24222	ROOM 12	S	120	124.36	0.00	0.00	0.00	124.36	0.03	0.00	0.00	0.00	0.03	99.98%
22549	ROOM 126	CR	630	32.54	0.00	0.00	0.00	32.54	28.00	0.00	0.00	0.00	28.00	13.95%
21748	ROOM 202 -	R	120	35.81	0.00	0.00	0.00	35.81	22.69	0.00	0.00	0.00	22.69	36.64%
24955	ROOM 203 -	R	240	167.99	0.00	0.00	0.00	167.99	63.78	0.00	0.00	0.00	63.78	62.03%
23712	ROOM 218A	S	630	59.15	0.00	0.00	0.00	59.15	11.49	0.00	0.00	0.00	11.49	80.57%
23144	ROOM 222 -	OS	2160	126.43	0.00	0.00	0.00	126.43	35.23	0.00	0.00	0.00	35.23	72.13%
24894	ROOM 235	CR	630	26.87	0.00	0.00	0.00	26.87	24.42	0.00	0.00	0.00	24.42	9.12%

Building Summary Totals for NORESO, NEWTON - OAK HILL MIDDLE SCHOOL Page 1 of 1

Building Summary Totals				Lights On KWHR					Occupied KWHR				
Area Type		Qty	Watts	Peak	Off	Shldr 1	Shldr 2	Total	Peak	Off	Shldr 1	Shldr 2	Total
Private Office	PO	4	572	23	0	0	0	23	15	0	0	0	15
Meeting Rooms	M	1	180	9	0	0	0	9	5	0	0	0	5
Open Space	OS	4	5760	362	0	0	0	362	208	0	0	0	208
Restroom	R	4	600	46	0	0	0	46	20	0	0	0	20
Storage	S	5	1230	110	0	0	0	110	28	0	0	0	28
Hallway	H	4	2820	386	0	0	0	386	123	0	0	0	123
Classroom	CR	5	3510	114	0	0	0	114	93	0	0	0	93
Gym	G	1	1700	86	0	0	0	86	67	0	0	0	67
Building Totals			16372	1136			0	1136	558			0	558

204 STORAGE

Area type: Storage. Logger: 23723. Time delay 10 minutes. NORESCO, NEWTON - OAK HILL MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	56.550	24.000	15.700	6.663	3.400	1.443
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	56.550	24.000	15.700	6.663	3.400	1.443

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	10.767	3.589	2.600	0.867
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	10.767	3.589	2.600	0.867

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	10.133	3.378	4.400	1.467
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	10.133	3.378	4.400	1.467

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	61.517	24.000	6.333	2.471	1.033	0.403
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	61.517	24.000	6.333	2.471	1.033	0.403

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	15.033	5.011	3.300	1.100
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	15.033	5.011	3.300	1.100

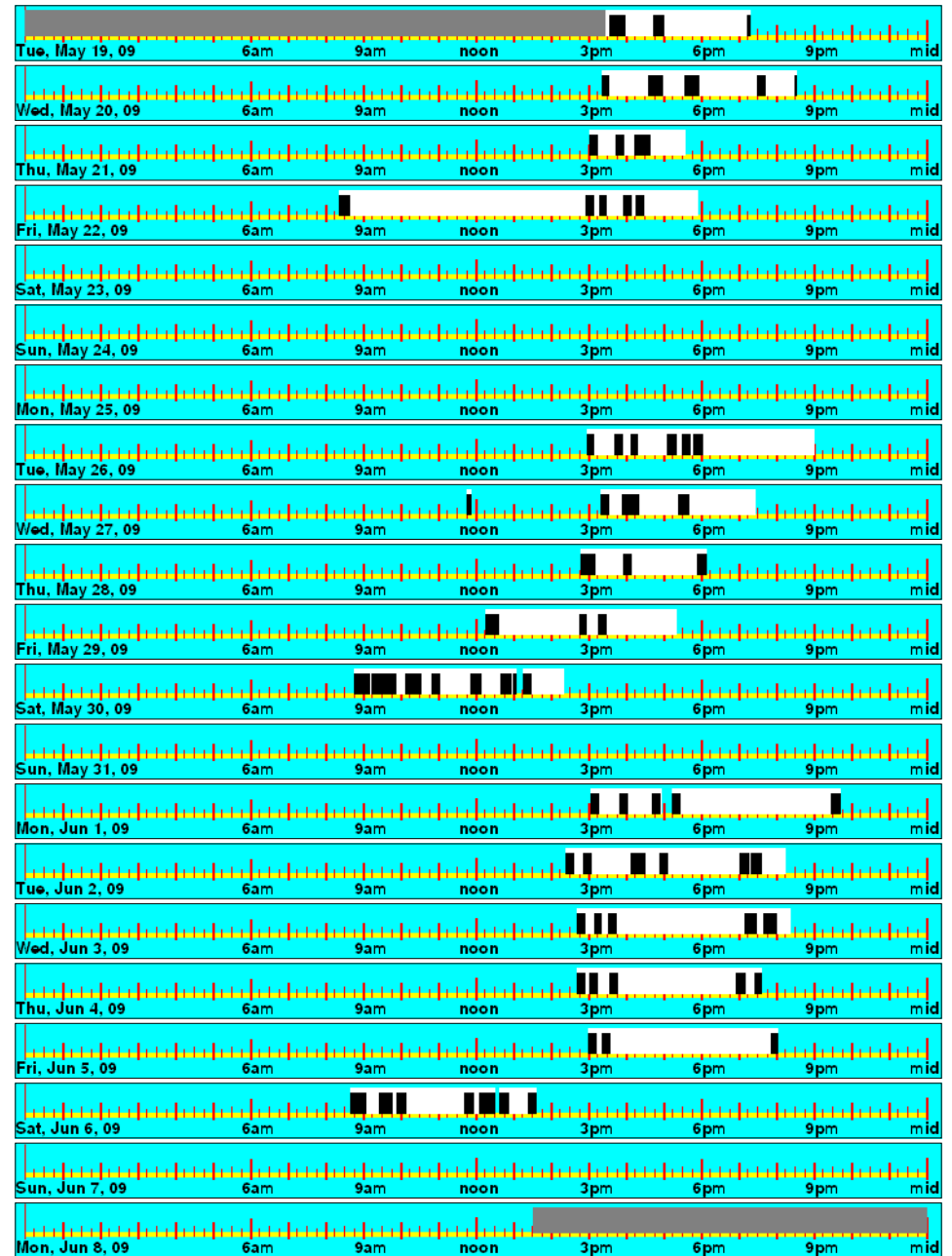
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	19.633	6.544	2.300	0.767
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	19.633	6.544	2.300	0.767

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	77.600	17.033	478.067	27.270	5.986	78.0%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	77.600	17.033	478.067	27.270	5.986	78.0%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	2.471	0.403	6.663	1.443	5.011	1.100	3.589	0.867	6.544	0.767	3.378	1.467
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	2.471	0.403	6.663	1.443	5.011	1.100	3.589	0.867	6.544	0.767	3.378	1.467

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	77.600	17.033	478.067	^ ^ ^ ^	27.270	5.986	78.0%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	77.600	17.033	478.067		27.270	5.986	78.0%



BOYS ROOM - BY MUSIC ROOM

Area type: Restroom. Logger: 24965. Time delay 10 minutes. NORESKO, NEWTON - OAK HILL MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	56.783	24.000	16.533	6.988	1.300	0.549
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	56.783	24.000	16.533	6.988	1.300	0.549

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	18.333	6.111	6.233	2.078
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	18.333	6.111	6.233	2.078

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	1.733	0.578	0.200	0.067
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	1.733	0.578	0.200	0.067

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	61.217	24.000	12.700	4.979	5.100	1.999
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	61.217	24.000	12.700	4.979	5.100	1.999

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	22.767	7.589	5.367	1.789
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	22.767	7.589	5.367	1.789

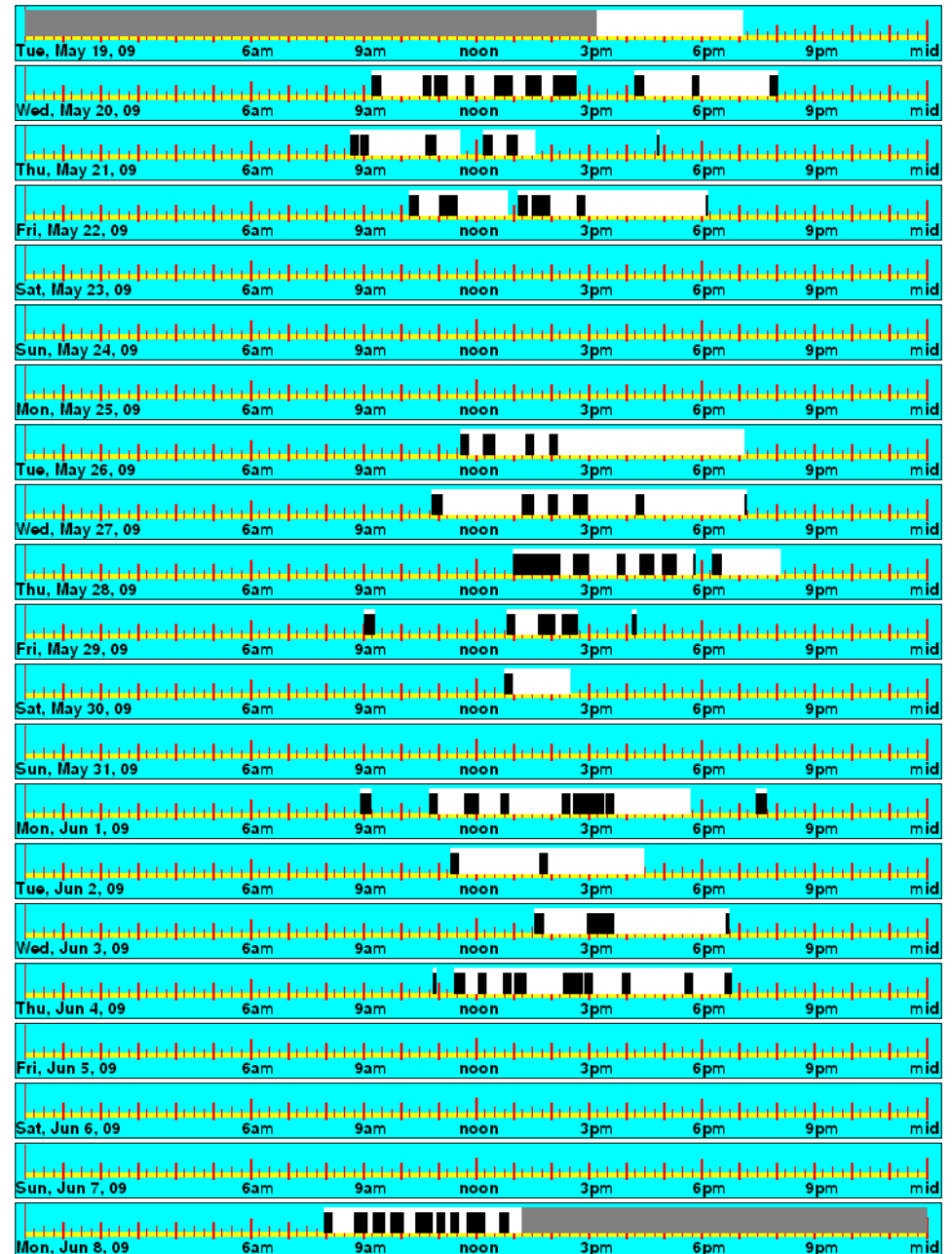
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	9.867	3.289	2.967	0.989
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	9.867	3.289	2.967	0.989

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	81.933	21.167	478.000	28.797	7.439	74.2%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	81.933	21.167	478.000	28.797	7.439	74.2%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	4.979	1.999	6.988	0.549	7.589	1.789	6.111	2.078	3.289	0.989	0.578	0.067
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	4.979	1.999	6.988	0.549	7.589	1.789	6.111	2.078	3.289	0.989	0.578	0.067

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	81.933	21.167	478.000	^ ^ ^ ^	28.797	7.439	74.2%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	81.933	21.167	478.000		28.797	7.439	74.2%



CAFE

Area type: Open Space. Logger: 22481. Time delay 10 minutes. NORESCO, NEWTON - OAK HILL MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	57.583	24.000	20.033	8.350	16.333	6.808
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	57.583	24.000	20.033	8.350	16.333	6.808

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	32.600	10.867	31.867	10.622
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	32.600	10.867	31.867	10.622

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	11.433	3.811	10.967	3.656
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	11.433	3.811	10.967	3.656

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	59.817	24.000	19.867	7.971	18.800	7.543
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	59.817	24.000	19.867	7.971	18.800	7.543

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	30.417	10.139	27.250	9.083
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	30.417	10.139	27.250	9.083

Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	22.067	7.356	21.000	7.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	22.067	7.356	21.000	7.000

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	136.417	126.217	477.400	48.006	44.416	7.5%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	136.417	126.217	477.400	48.006	44.416	7.5%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	7.971	7.543	8.350	6.808	10.139	9.083	10.867	10.622	7.356	7.000	3.811	3.656
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	7.971	7.543	8.350	6.808	10.139	9.083	10.867	10.622	7.356	7.000	3.811	3.656

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	136.417	126.217	477.400	^ ^ ^ ^	48.006	44.416	7.5%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	136.417	126.217	477.400		48.006	44.416	7.5%



CUSTODIANS OFFICE

Area type: Storage. Logger: 23316. Time delay 10 minutes. NORESCO, NEWTON - OAK HILL MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	72.000	24.000	0.967	0.322
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	72.000	24.000	0.967	0.322

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	57.533	24.000	57.533	24.000	20.233	8.440
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	57.533	24.000	57.533	24.000	20.233	8.440

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	72.000	24.000	27.033	9.011
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	72.000	24.000	27.033	9.011

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	72.000	24.000	6.967	2.322
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	72.000	24.000	6.967	2.322

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	59.900	24.000	59.883	23.993	13.533	5.422
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	59.900	24.000	59.883	23.993	13.533	5.422

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	72.000	24.000	26.167	8.722
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	72.000	24.000	26.167	8.722

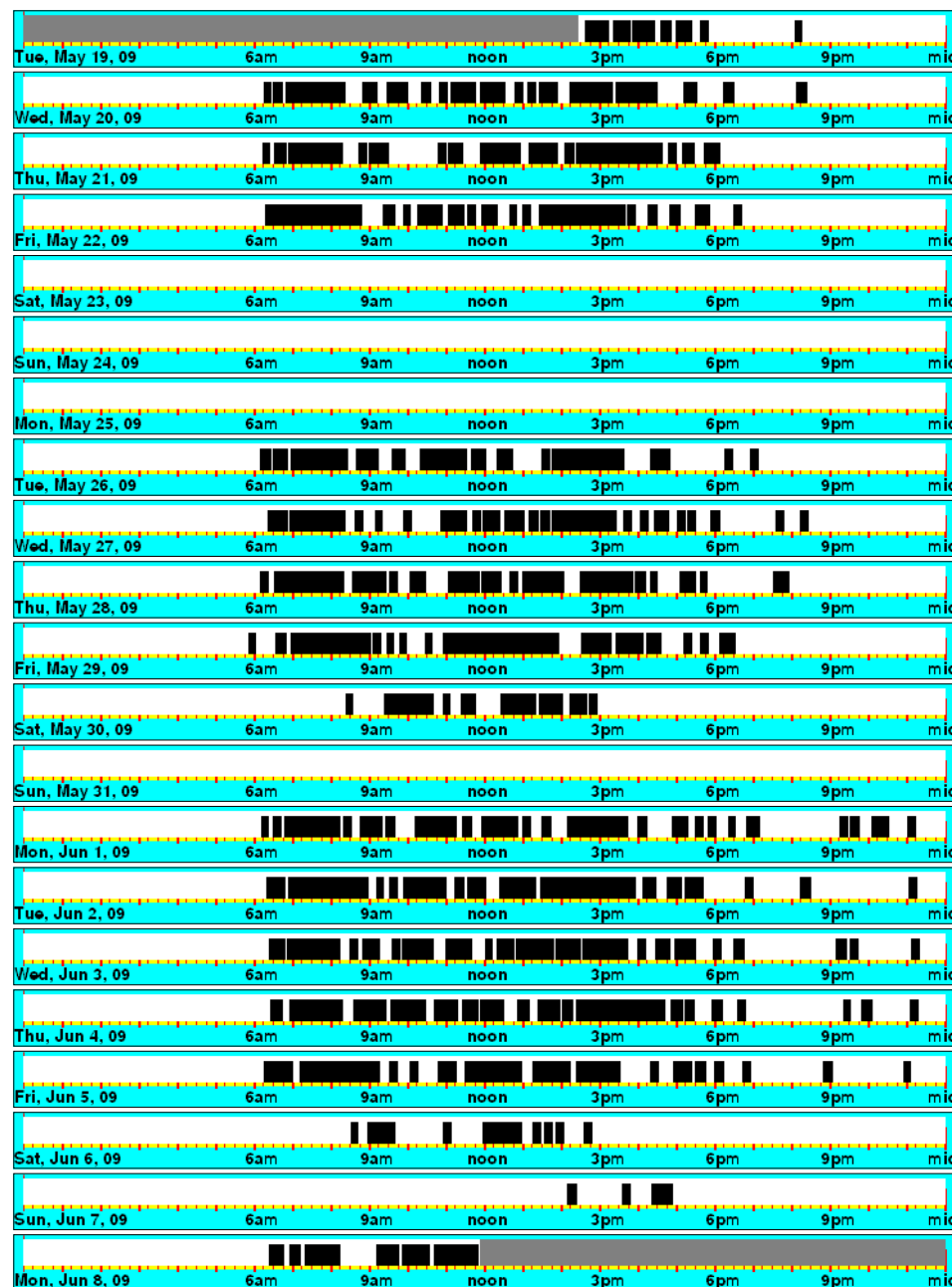
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	72.000	24.000	26.000	8.667
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	72.000	24.000	26.000	8.667

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	477.417	120.900	477.433	167.994	42.542	74.7%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	477.417	120.900	477.433	167.994	42.542	74.7%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	24.000	0.322	23.993	5.422	24.000	8.440	24.000	8.722	24.000	9.011	24.000	8.667	24.000	2.322
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	24.000	0.322	23.993	5.422	24.000	8.440	24.000	8.722	24.000	9.011	24.000	8.667	24.000	2.322

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	477.417	120.900	477.433	^ ^ ^ ^	167.994	42.542	74.7%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	477.417	120.900	477.433		167.994	42.542	74.7%



GYM

Area type: Gym. Logger: 23335. Time delay 10 minutes. NORESKO, NEWTON - OAK HILL MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	57.317	24.000	19.467	8.151	13.200	5.527
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	57.317	24.000	19.467	8.151	13.200	5.527

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	34.800	11.600	27.000	9.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	34.800	11.600	27.000	9.000

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	7.000	2.333	6.967	2.322
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	7.000	2.333	6.967	2.322

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	60.200	24.000	17.933	7.150	13.333	5.316
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	60.200	24.000	17.933	7.150	13.333	5.316

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	41.000	13.667	33.967	11.322
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	41.000	13.667	33.967	11.322

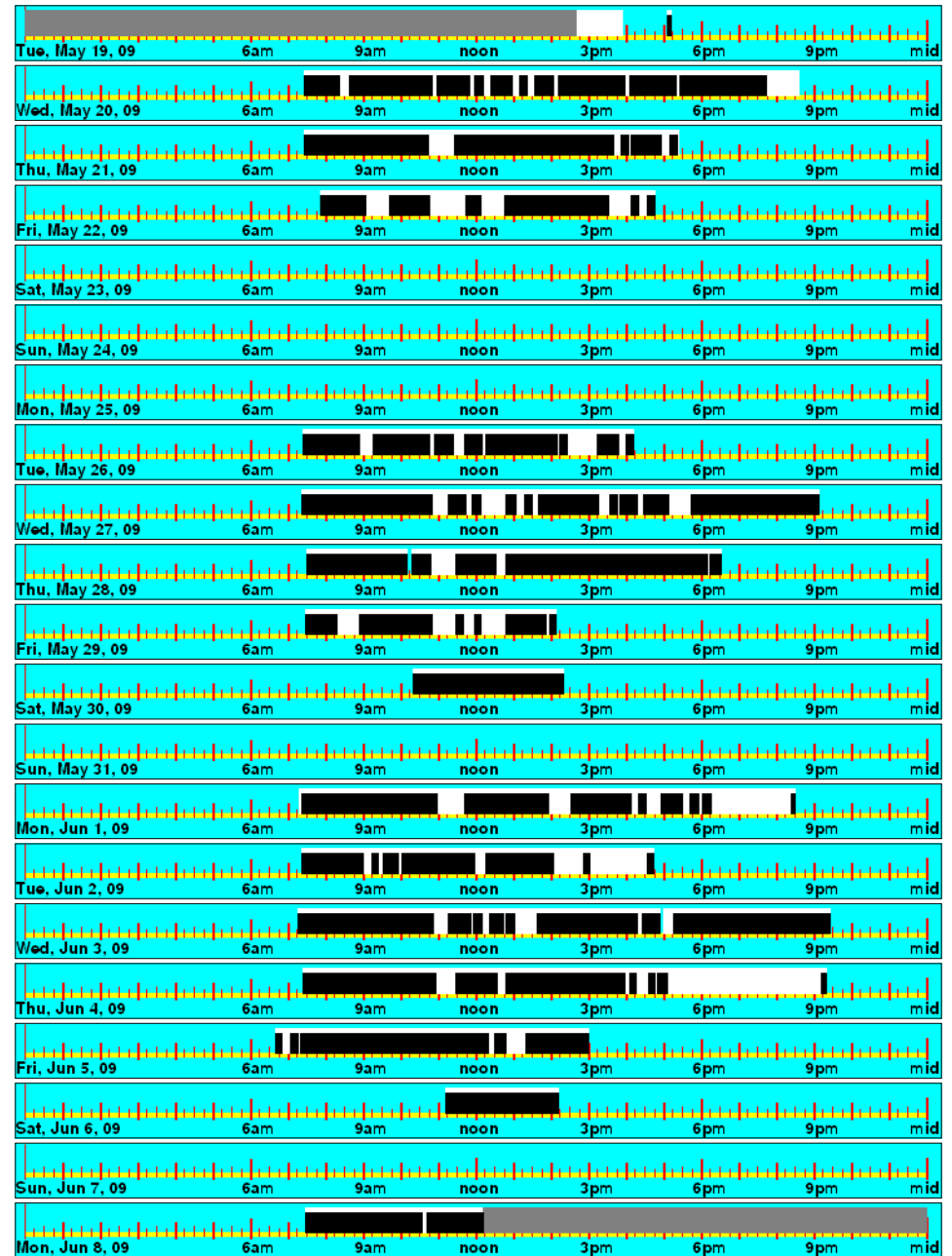
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	23.900	7.967	17.467	5.822
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	23.900	7.967	17.467	5.822

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	144.100	111.933	477.517	50.697	39.380	22.3%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	144.100	111.933	477.517	50.697	39.380	22.3%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	7.150	5.316	8.151	5.527	13.667	11.322	11.600	9.000	7.967	5.822	2.333	2.322
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	7.150	5.316	8.151	5.527	13.667	11.322	11.600	9.000	7.967	5.822	2.333	2.322

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	144.100	111.933	477.517	^ ^ ^ ^	50.697	39.380	22.3%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	144.100	111.933	477.517		50.697	39.380	22.3%



HALL - OUTSIDE ROOM 243

Area type: Hallway. Logger: 20682. Time delay 10 minutes. NORESCO, NEWTON - OAK HILL MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	72.000	24.000	0.200	0.067
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	72.000	24.000	0.200	0.067

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	56.917	24.000	56.917	24.000	16.733	7.056
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	56.917	24.000	56.917	24.000	16.733	7.056

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	72.000	24.000	26.167	8.722
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	72.000	24.000	26.167	8.722

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	72.000	24.000	4.633	1.544
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	72.000	24.000	4.633	1.544

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	60.833	24.000	60.817	23.993	14.267	5.628
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	60.833	24.000	60.817	23.993	14.267	5.628

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	72.000	24.000	26.500	8.833
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	72.000	24.000	26.500	8.833

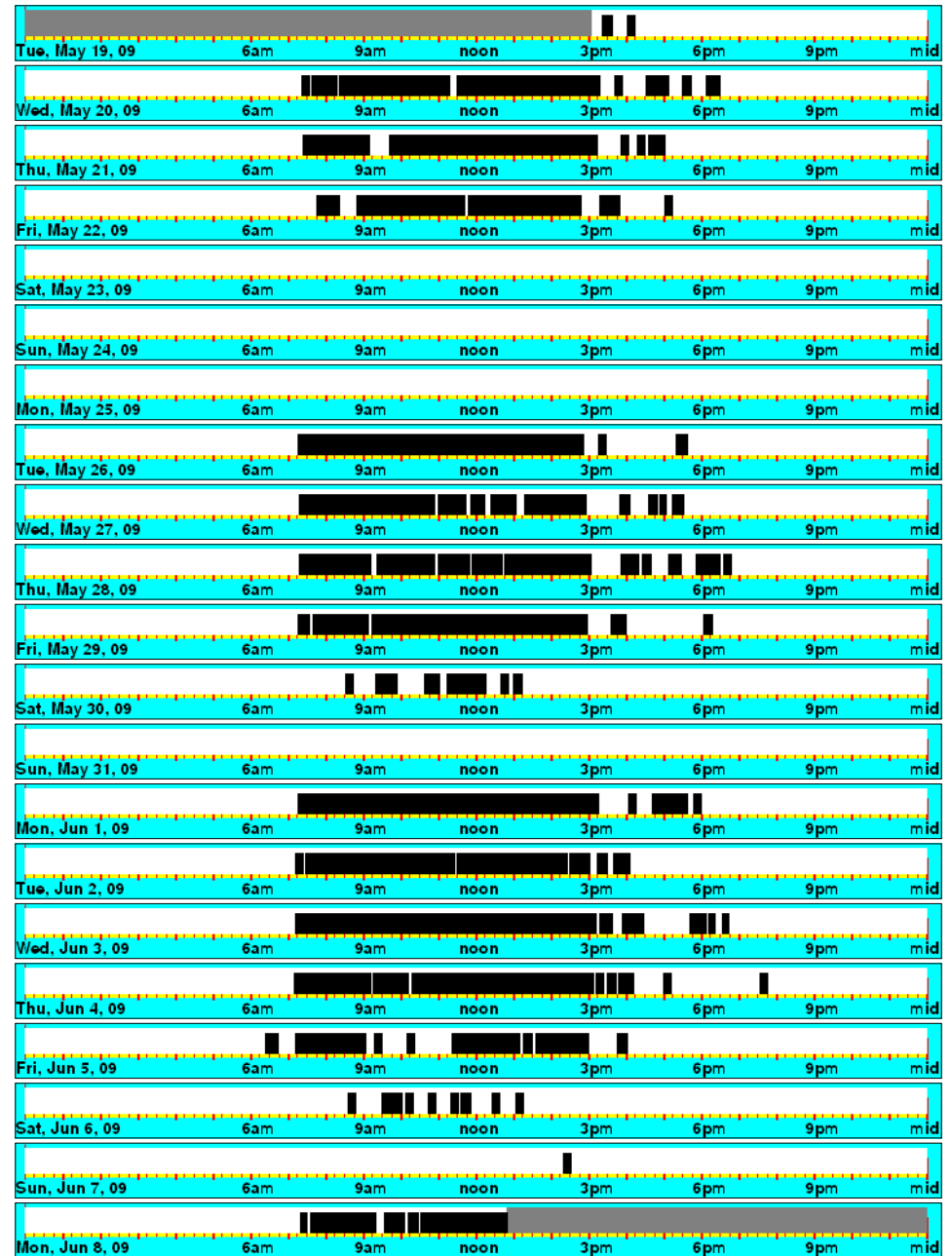
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	72.000	24.000	21.500	7.167
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	72.000	24.000	21.500	7.167

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	477.733	110.000	477.750	167.994	38.681	77.0%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	477.733	110.000	477.750	167.994	38.681	77.0%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	24.000	0.067	23.993	5.628	24.000	7.056	24.000	8.833	24.000	8.722	24.000	7.167	24.000	1.544
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	24.000	0.067	23.993	5.628	24.000	7.056	24.000	8.833	24.000	8.722	24.000	7.167	24.000	1.544

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	477.733	110.000	477.750	^ ^ ^ ^	167.994	38.681	77.0%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	477.733	110.000	477.750		167.994	38.681	77.0%



HALL B Y ROOM 119A

Area type: Hallway. Logger: 22642. Time delay 10 minutes. NORESCO, NEWTON - OAK HILL MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	72.000	24.000	0.867	0.289
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	72.000	24.000	0.867	0.289

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	57.450	24.000	57.450	24.000	22.300	9.316
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	57.450	24.000	57.450	24.000	22.300	9.316

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	72.000	24.000	31.867	10.622
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	72.000	24.000	31.867	10.622

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	72.000	24.000	11.167	3.722
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	72.000	24.000	11.167	3.722

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	60.017	24.000	60.000	23.993	17.533	7.011
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	60.017	24.000	60.000	23.993	17.533	7.011

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	72.000	24.000	34.033	11.344
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	72.000	24.000	34.033	11.344

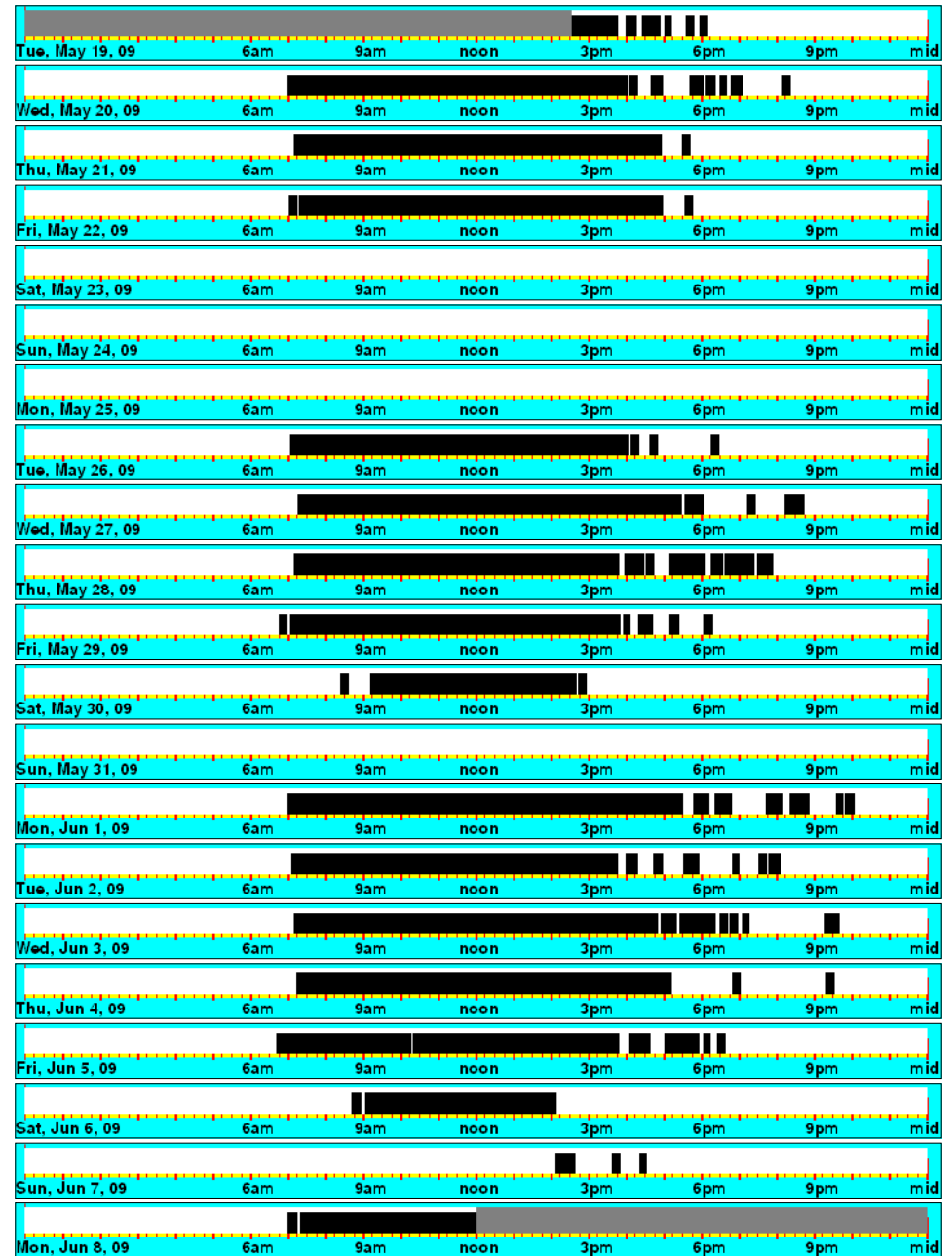
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	72.000	24.000	30.767	10.256
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	72.000	24.000	30.767	10.256

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	477.450	148.533	477.467	167.994	52.263	68.9%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	477.450	148.533	477.467	167.994	52.263	68.9%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	24.000	0.289	23.993	7.011	24.000	9.316	24.000	11.344	24.000	10.622	24.000	10.256	24.000	3.722
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	24.000	0.289	23.993	7.011	24.000	9.316	24.000	11.344	24.000	10.622	24.000	10.256	24.000	3.722

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	477.450	148.533	477.467	^ ^ ^ ^	167.994	52.263	68.9%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	477.450	148.533	477.467		167.994	52.263	68.9%



HALL BY BATHS

Area type: Hallway. Logger: 23245. Time delay 10 minutes. NORESCO, NEWTON - OAK HILL MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	72.000	24.000	0.167	0.056
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	72.000	24.000	0.167	0.056

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	57.150	24.000	57.150	24.000	25.867	10.863
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	57.150	24.000	57.150	24.000	25.867	10.863

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	69.133	23.044	33.433	11.144
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	69.133	23.044	33.433	11.144

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	72.000	24.000	11.633	3.878
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	72.000	24.000	11.633	3.878

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	60.333	24.000	60.317	23.993	18.300	7.280
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	60.333	24.000	60.317	23.993	18.300	7.280

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	72.000	24.000	36.133	12.044
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	72.000	24.000	36.133	12.044

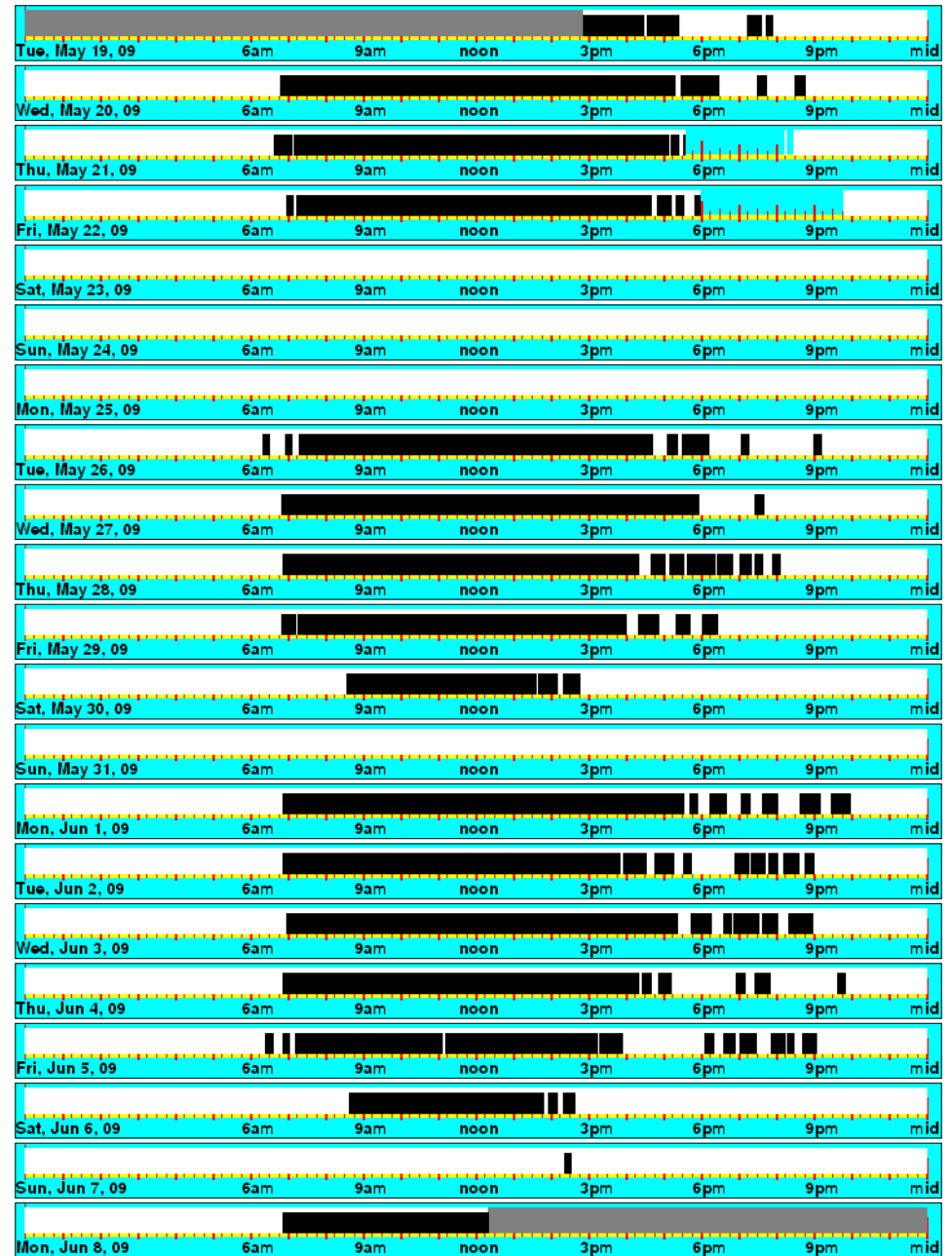
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	68.133	22.711	31.367	10.456
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	68.133	22.711	31.367	10.456

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	470.733	156.900	477.483	165.625	55.204	66.7%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	470.733	156.900	477.483	165.625	55.204	66.7%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	24.000	0.056	23.993	7.280	24.000	10.863	24.000	12.044	23.044	11.144	22.711	10.456	24.000	3.878
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	24.000	0.056	23.993	7.280	24.000	10.863	24.000	12.044	23.044	11.144	22.711	10.456	24.000	3.878

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	470.733	156.900	477.483	^ ^ ^ ^	165.625	55.204	66.7%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	470.733	156.900	477.483		165.625	55.204	66.7%



HALL BY ROOM 10

Area type: Hallway. Logger: 21125. Time delay 10 minutes. NORESCO, NEWTON - OAK HILL MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	56.383	24.000	21.417	9.116	10.750	4.576
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	56.383	24.000	21.417	9.116	10.750	4.576

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	30.800	10.267	22.100	7.367
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	30.800	10.267	22.100	7.367

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	11.667	3.889	4.500	1.500
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	11.667	3.889	4.500	1.500

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	60.967	24.000	17.217	6.777	12.450	4.901
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	60.967	24.000	17.217	6.777	12.450	4.901

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	32.000	10.667	18.833	6.278
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	32.000	10.667	18.833	6.278

Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	16.400	5.467	11.367	3.789
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	16.400	5.467	11.367	3.789

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	129.500	80.000	477.350	45.577	28.155	38.2%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	129.500	80.000	477.350	45.577	28.155	38.2%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	6.777	4.901	9.116	4.576	10.667	6.278	10.267	7.367	5.467	3.789	3.889	1.500
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	6.777	4.901	9.116	4.576	10.667	6.278	10.267	7.367	5.467	3.789	3.889	1.500

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	129.500	80.000	477.350	^ ^ ^ ^	45.577	28.155	38.2%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	129.500	80.000	477.350		45.577	28.155	38.2%



MAIN ENTRANCE

Area type: Open Space. Logger: 24956. Time delay 10 minutes. NORESKO, NEWTON - OAK HILL MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	57.217	24.000	23.667	9.927	12.200	5.117
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	57.217	24.000	23.667	9.927	12.200	5.117

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	15.233	5.078	11.500	3.833
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	15.233	5.078	11.500	3.833

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	61.550	24.000	0.100	0.039	0.100	0.039
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	61.550	24.000	0.100	0.039	0.100	0.039

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	31.033	10.344	19.367	6.456
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	31.033	10.344	19.367	6.456

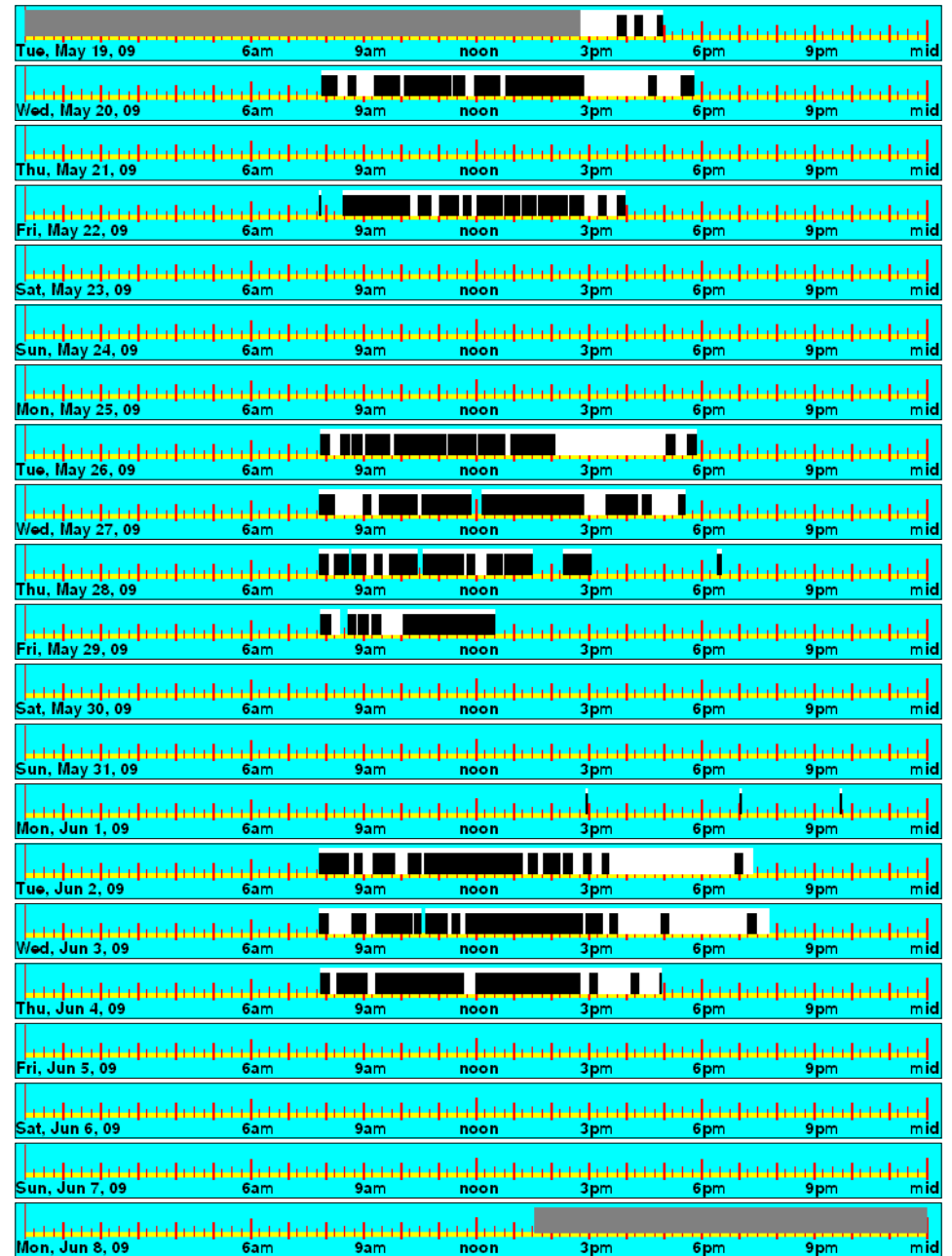
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	11.933	3.978	9.200	3.067
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	11.933	3.978	9.200	3.067

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	81.967	52.367	478.767	28.762	18.376	36.1%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	81.967	52.367	478.767	28.762	18.376	36.1%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	0.039	0.039	9.927	5.117	10.344	6.456	5.078	3.833	3.978	3.067	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	0.039	0.039	9.927	5.117	10.344	6.456	5.078	3.833	3.978	3.067	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	81.967	52.367	478.767	^ ^ ^ ^	28.762	18.376	36.1%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	81.967	52.367	478.767		28.762	18.376	36.1%



MAIN OFFICE

Area type: Open Space. Logger: 21476. Time delay 10 minutes. NORESCO, NEWTON - OAK HILL MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	57.733	24.000	21.567	8.965	20.133	8.370
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	57.733	24.000	21.567	8.965	20.133	8.370

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	31.433	10.478	30.533	10.178
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	31.433	10.478	30.533	10.178

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	10.300	3.433	10.300	3.433
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	10.300	3.433	10.300	3.433

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	59.683	24.000	15.200	6.112	14.367	5.777
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	59.683	24.000	15.200	6.112	14.367	5.777

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	30.100	10.033	28.567	9.522
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	30.100	10.033	28.567	9.522

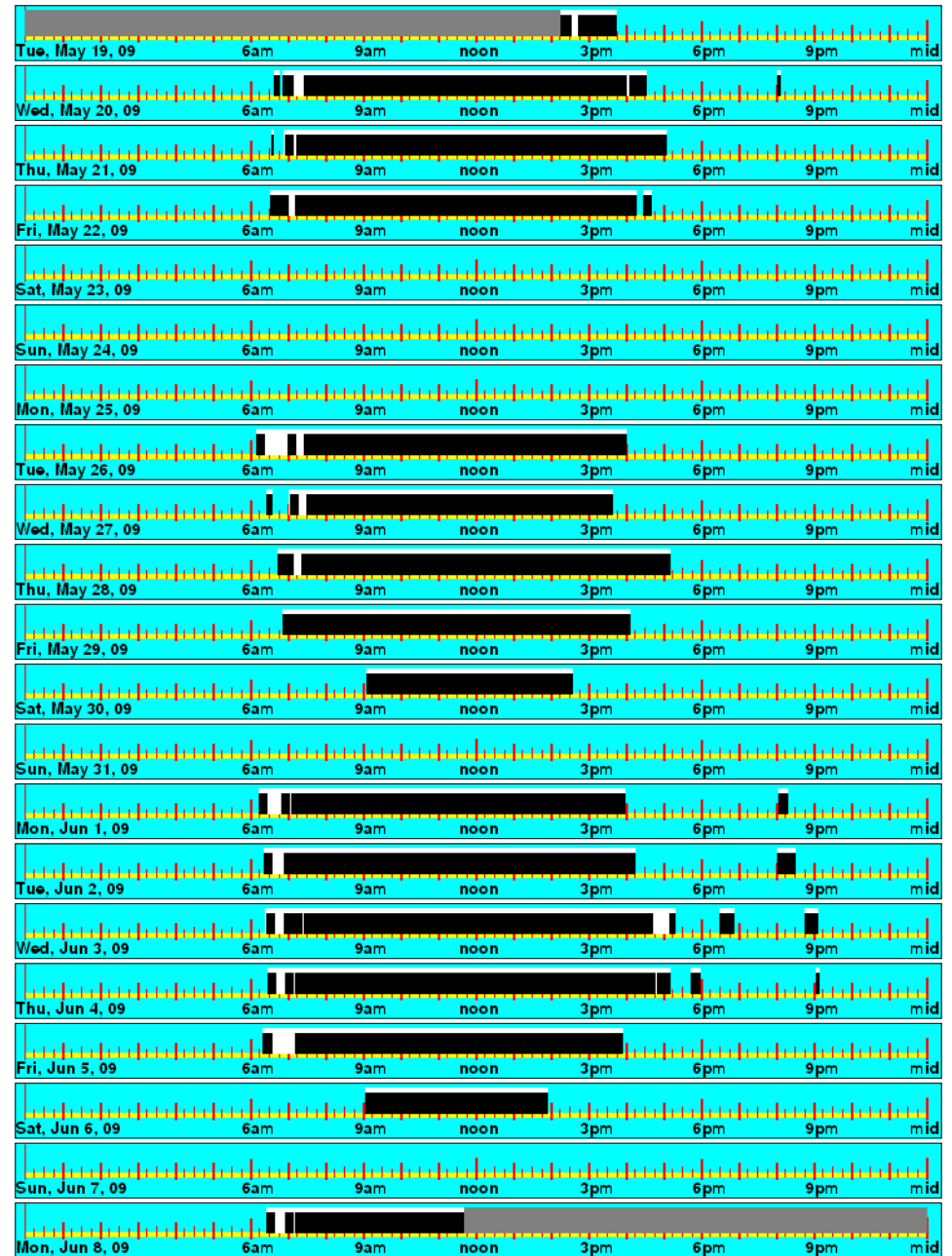
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	28.667	9.556	27.833	9.278
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	28.667	9.556	27.833	9.278

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	137.267	131.733	477.417	48.303	46.356	4.0%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	137.267	131.733	477.417	48.303	46.356	4.0%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	6.112	5.777	8.965	8.370	10.033	9.522	10.478	10.178	9.556	9.278	3.433	3.433
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	6.112	5.777	8.965	8.370	10.033	9.522	10.478	10.178	9.556	9.278	3.433	3.433

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	137.267	131.733	477.417	^ ^ ^ ^	48.303	46.356	4.0%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	137.267	131.733	477.417		48.303	46.356	4.0%



MAIN OFFICE - MR YEE

Area type: Private Office. Logger: 22109. Time delay 10 minutes. NORESO, NEWTON - OAK HILL MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	57.683	24.000	16.600	6.907	15.100	6.283
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	57.683	24.000	16.600	6.907	15.100	6.283

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	35.867	11.956	25.500	8.500
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	35.867	11.956	25.500	8.500

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	59.733	24.000	12.767	5.129	9.800	3.938
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	59.733	24.000	12.767	5.129	9.800	3.938

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	37.367	12.456	20.967	6.989
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	37.367	12.456	20.967	6.989

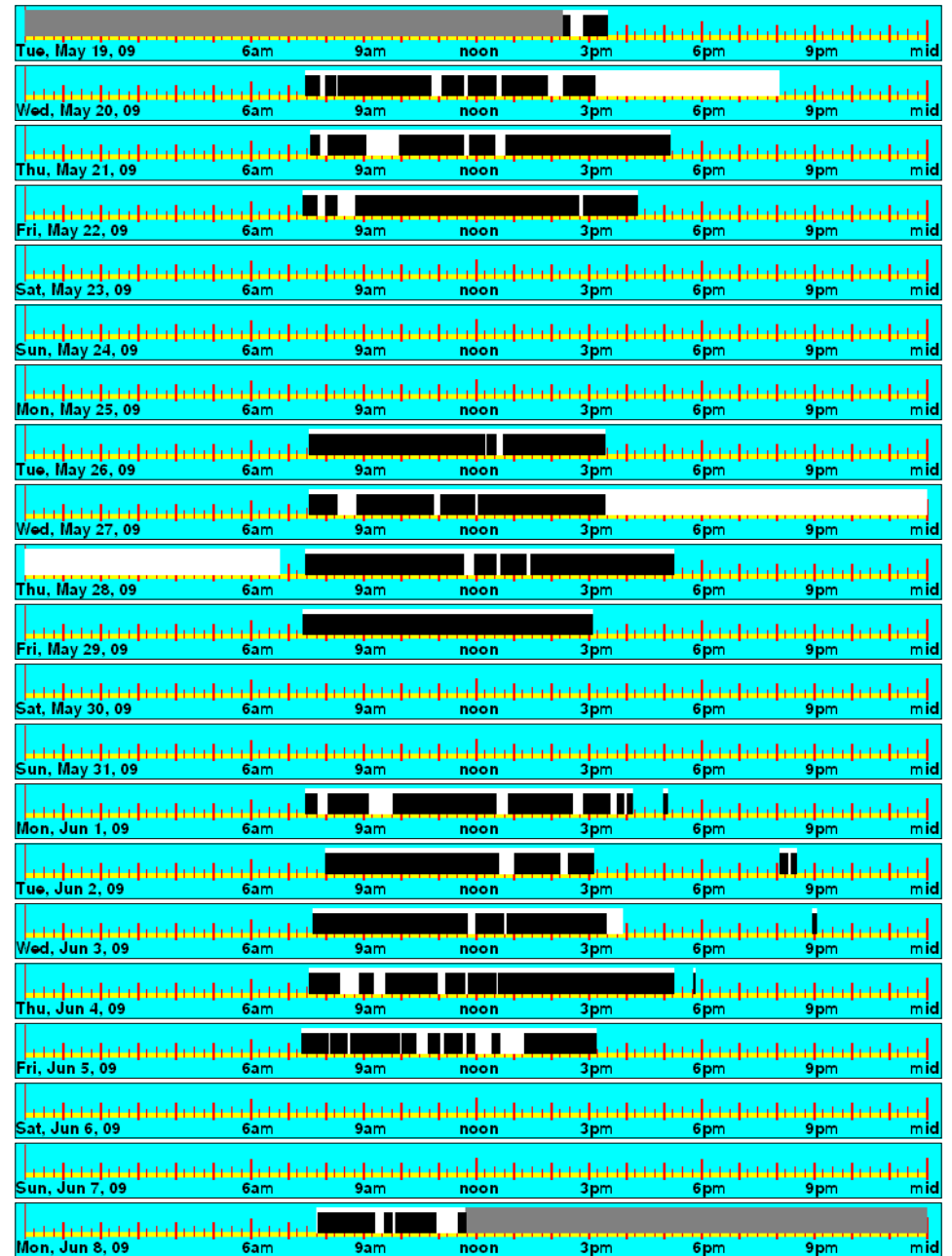
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	24.433	8.144	21.567	7.189
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	24.433	8.144	21.567	7.189

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	127.033	92.933	477.417	44.702	32.703	26.8%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	127.033	92.933	477.417	44.702	32.703	26.8%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	5.129	3.938	6.907	6.283	12.456	6.989	11.956	8.500	8.144	7.189	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	5.129	3.938	6.907	6.283	12.456	6.989	11.956	8.500	8.144	7.189	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	127.033	92.933	477.417	^ ^ ^ ^	44.702	32.703	26.8%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	127.033	92.933	477.417		44.702	32.703	26.8%



MAIN OFFICE - ROOM 137 PRINCIPAL

Area type: Private Office. Logger: 23237. Time delay 10 minutes. NORESKO, NEWTON - OAK HILL MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	57.650	24.000	23.883	9.943	8.133	3.386
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	57.650	24.000	23.883	9.943	8.133	3.386

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	24.600	8.200	13.367	4.456
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	24.600	8.200	13.367	4.456

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	59.733	24.000	13.033	5.237	11.500	4.621
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	59.733	24.000	13.033	5.237	11.500	4.621

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	26.050	8.683	12.633	4.211
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	26.050	8.683	12.633	4.211

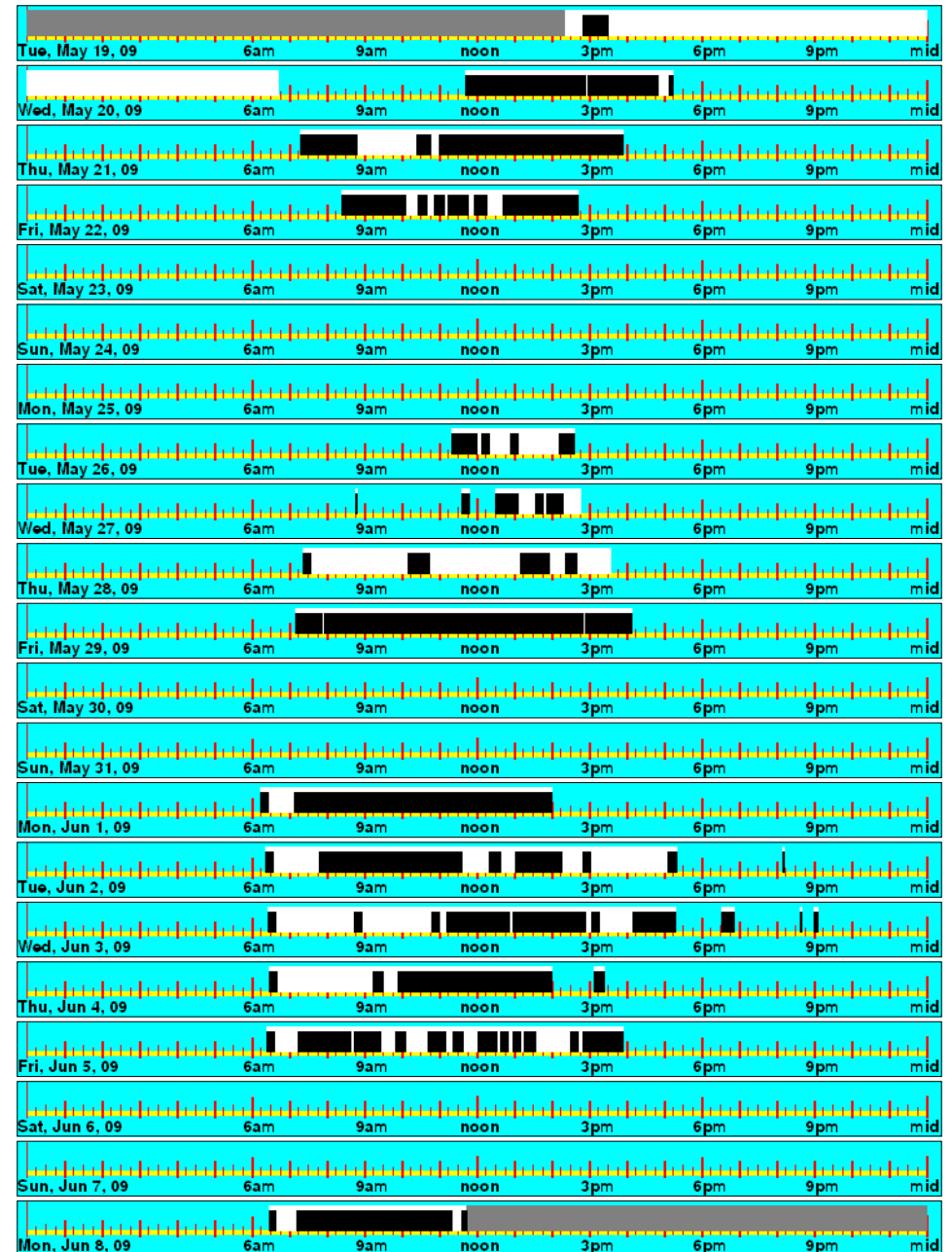
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	24.767	8.256	19.567	6.522
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	24.767	8.256	19.567	6.522

	Logged Totals			Normalized Totals		
Peak	112.333	65.200	477.383	39.532	22.945	42.0%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	112.333	65.200	477.383	39.532	22.945	42.0%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
Peak	0.000	0.000	5.237	4.621	9.943	3.386	8.683	4.211	8.200	4.456	8.256	6.522	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	5.237	4.621	9.943	3.386	8.683	4.211	8.200	4.456	8.256	6.522	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	112.333	65.200	477.383	^ ^ ^ ^	39.532	22.945	42.0%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	112.333	65.200	477.383		39.532	22.945	42.0%



MAIN OFFICE - ROOM 140

Area type: Private Office. Logger: 21843. Time delay 10 minutes. NORESO, NEWTON - OAK HILL MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	57.700	24.000	18.067	7.515	8.133	3.383
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	57.700	24.000	18.067	7.515	8.133	3.383

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	24.500	8.167	9.933	3.311
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	24.500	8.167	9.933	3.311

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	59.717	24.000	13.383	5.379	7.333	2.947
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	59.717	24.000	13.383	5.379	7.333	2.947

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	24.433	8.144	10.267	3.422
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	24.433	8.144	10.267	3.422

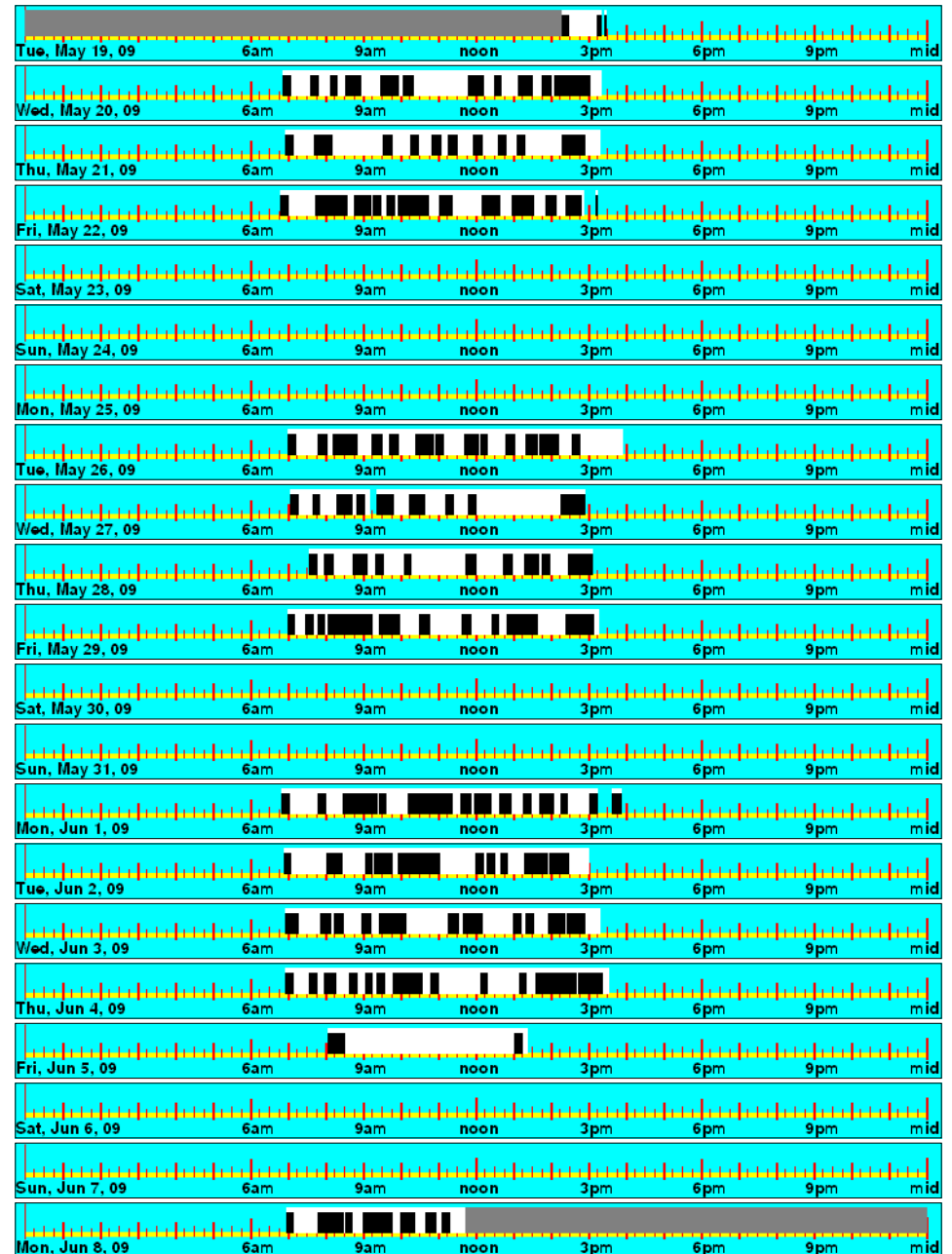
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	21.650	7.217	9.633	3.211
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	21.650	7.217	9.633	3.211

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	102.033	45.300	477.417	35.905	15.941	55.6%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	102.033	45.300	477.417	35.905	15.941	55.6%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	5.379	2.947	7.515	3.383	8.144	3.422	8.167	3.311	7.217	3.211	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	5.379	2.947	7.515	3.383	8.144	3.422	8.167	3.311	7.217	3.211	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	102.033	45.300	477.417	^ ^ ^ ^	35.905	15.941	55.6%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	102.033	45.300	477.417		35.905	15.941	55.6%



MUSIC ROOM

Area type: Classroom. Logger: 24107. Time delay 10 minutes. NORESKO, NEWTON - OAK HILL MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	56.733	24.000	21.500	9.095	12.600	5.330
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	56.733	24.000	21.500	9.095	12.600	5.330

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	22.733	7.578	17.700	5.900
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	22.733	7.578	17.700	5.900

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	60.950	24.000	12.817	5.047	8.750	3.445
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	60.950	24.000	12.817	5.047	8.750	3.445

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	32.517	10.839	23.900	7.967
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	32.517	10.839	23.900	7.967

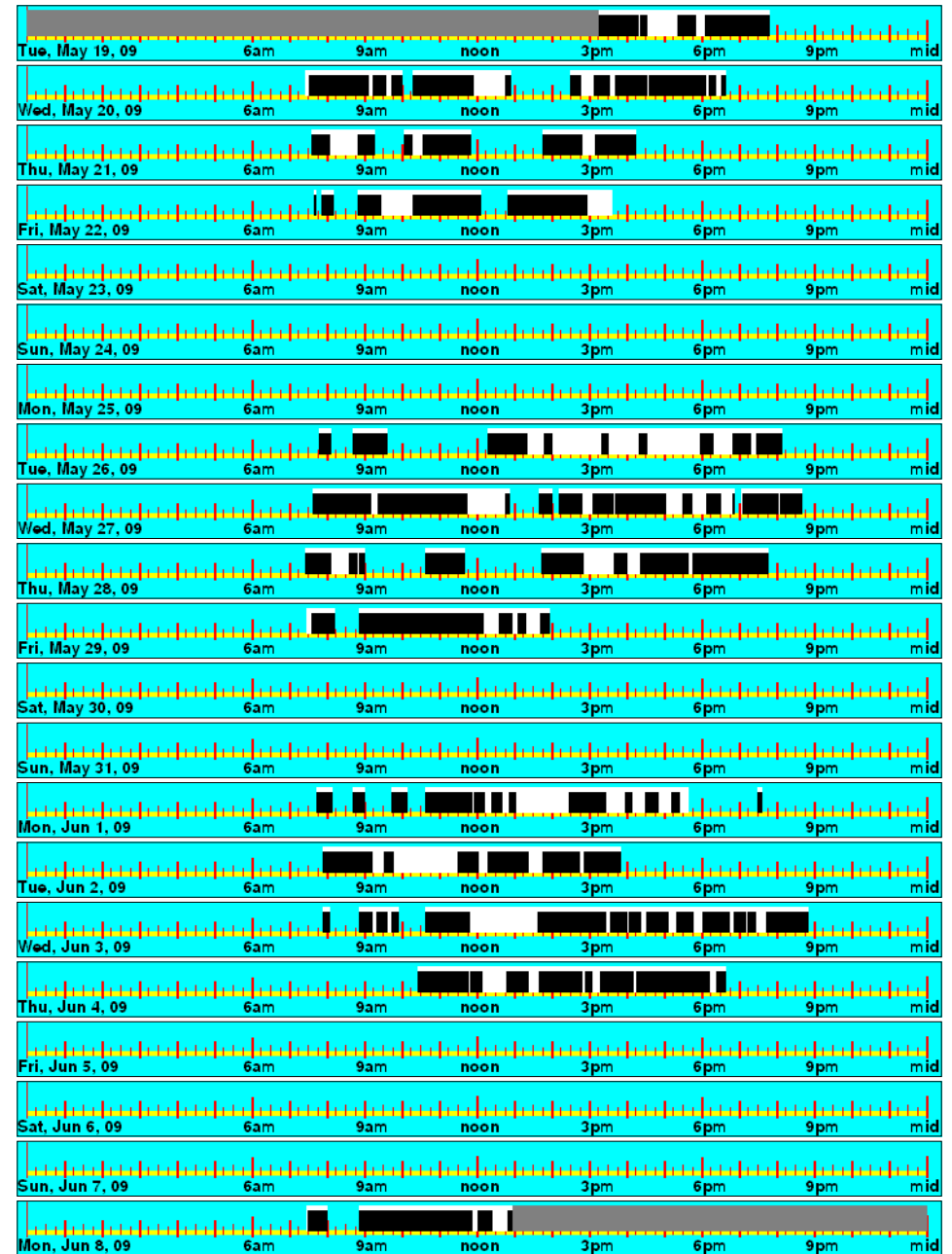
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	12.167	4.056	9.467	3.156
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	12.167	4.056	9.467	3.156

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	101.733	72.417	477.683	35.779	25.469	28.8%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	101.733	72.417	477.683	35.779	25.469	28.8%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	5.047	3.445	9.095	5.330	10.839	7.967	7.578	5.900	4.056	3.156	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	5.047	3.445	9.095	5.330	10.839	7.967	7.578	5.900	4.056	3.156	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	101.733	72.417	477.683	^ ^ ^ ^	35.779	25.469	28.8%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	101.733	72.417	477.683		35.779	25.469	28.8%



NURSE OFFICE

Area type: Private Office. Logger: 22544. Time delay 10 minutes. NORESO, NEWTON - OAK HILL MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	56.433	24.000	16.100	6.847	14.967	6.365
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	56.433	24.000	16.100	6.847	14.967	6.365

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	27.900	9.300	23.867	7.956
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	27.900	9.300	23.867	7.956

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	7.067	2.356	5.733	1.911
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	7.067	2.356	5.733	1.911

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	59.767	24.000	14.167	5.689	12.633	5.073
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	59.767	24.000	14.167	5.689	12.633	5.073

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	24.267	8.089	23.100	7.700
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	24.267	8.089	23.100	7.700

Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	22.633	7.544	20.833	6.944
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	22.633	7.544	20.833	6.944

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	112.133	101.133	476.200	39.560	35.679	9.8%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	112.133	101.133	476.200	39.560	35.679	9.8%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	5.689	5.073	6.847	6.365	8.089	7.700	9.300	7.956	7.544	6.944	2.356	1.911
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	5.689	5.073	6.847	6.365	8.089	7.700	9.300	7.956	7.544	6.944	2.356	1.911

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	112.133	101.133	476.200	^ ^ ^ ^	39.560	35.679	9.8%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	112.133	101.133	476.200		39.560	35.679	9.8%



ROOM 10

Area type: Classroom. Logger: 21196. Time delay 10 minutes. NORESO, NEWTON - OAK HILL MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normalized Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normalized Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	13.667	6.833	13.033	6.517
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	13.667	6.833	13.033	6.517

Thu	Total Log Time	Hours /Day	Logged Lites On	Normalized Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	27.167	9.056	23.433	7.811
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	27.167	9.056	23.433	7.811

Sat	Total Log Time	Hours /Day	Logged Lites On	Normalized Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	4.067	1.356	2.933	0.978
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	4.067	1.356	2.933	0.978

Mon	Total Log Time	Hours /Day	Logged Lites On	Normalized Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	61.000	24.000	12.483	4.911	10.883	4.282
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	61.000	24.000	12.483	4.911	10.883	4.282

Wed	Total Log Time	Hours /Day	Logged Lites On	Normalized Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	64.317	24.000	25.267	9.428	24.133	9.005
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	64.317	24.000	25.267	9.428	24.133	9.005

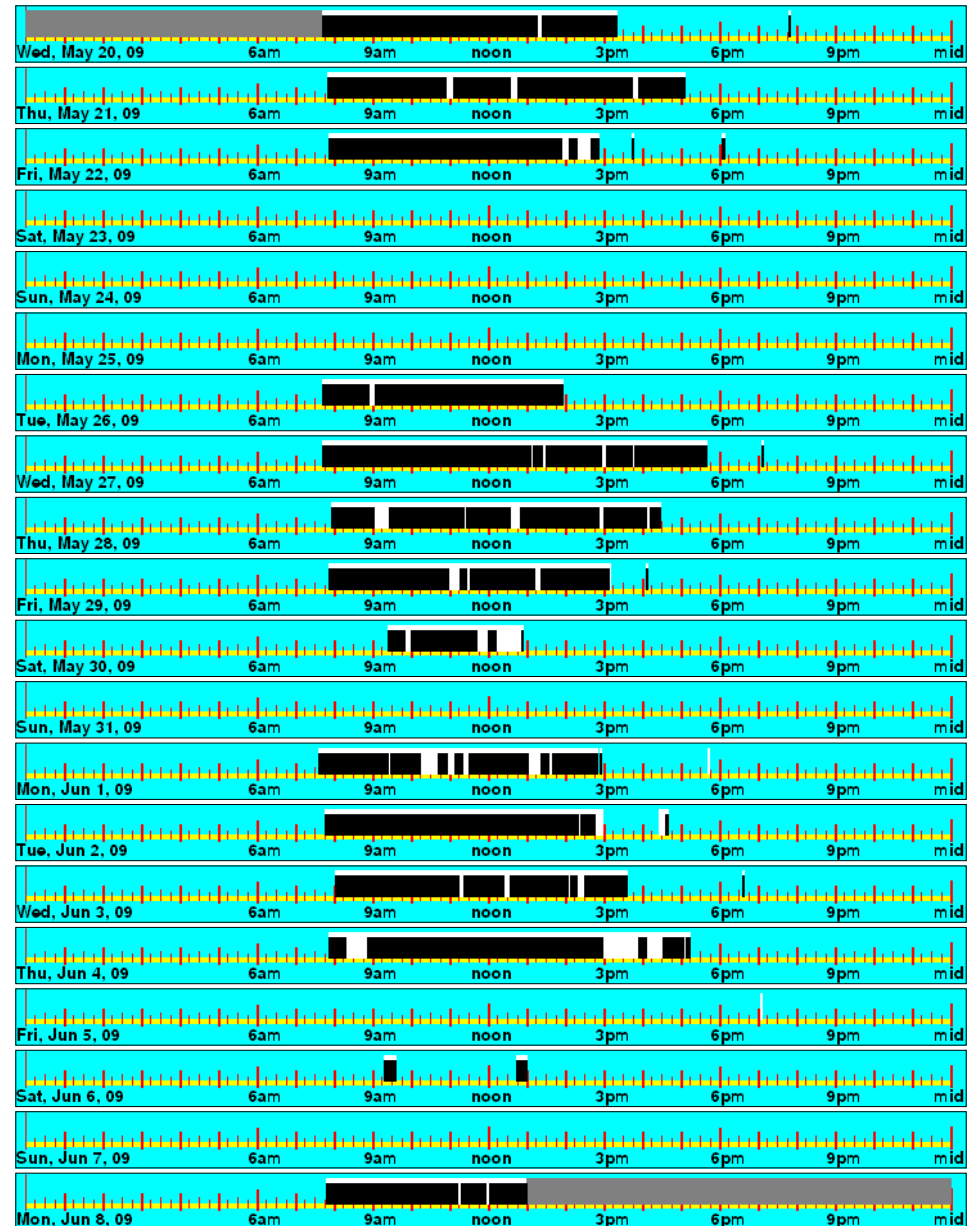
Fri	Total Log Time	Hours /Day	Logged Lites On	Normalized Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	14.483	4.828	13.217	4.406
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	14.483	4.828	13.217	4.406

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	97.133	87.633	461.317	35.374	31.914	9.8%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	97.133	87.633	461.317	35.374	31.914	9.8%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	4.911	4.282	6.833	6.517	9.428	9.005	9.056	7.811	4.828	4.406	1.356	0.978
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	4.911	4.282	6.833	6.517	9.428	9.005	9.056	7.811	4.828	4.406	1.356	0.978

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	97.133	87.633	461.317	^ ^ ^ ^	35.374	31.914	9.8%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	97.133	87.633	461.317		35.374	31.914	9.8%



ROOM 102 - BOYS ROOM

Area type: Restroom. Logger: 20920. Time delay 10 minutes. NORESKO, NEWTON - OAK HILL MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	9.667	3.222	0.233	0.078
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	9.667	3.222	0.233	0.078

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	57.367	24.000	29.267	12.244	16.100	6.736
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	57.367	24.000	29.267	12.244	16.100	6.736

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	36.400	12.133	23.833	7.944
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	36.400	12.133	23.833	7.944

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	18.667	6.222	8.233	2.744
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	18.667	6.222	8.233	2.744

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	60.100	24.000	24.550	9.804	15.217	6.077
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	60.100	24.000	24.550	9.804	15.217	6.077

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	35.533	11.844	23.133	7.711
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	35.533	11.844	23.133	7.711

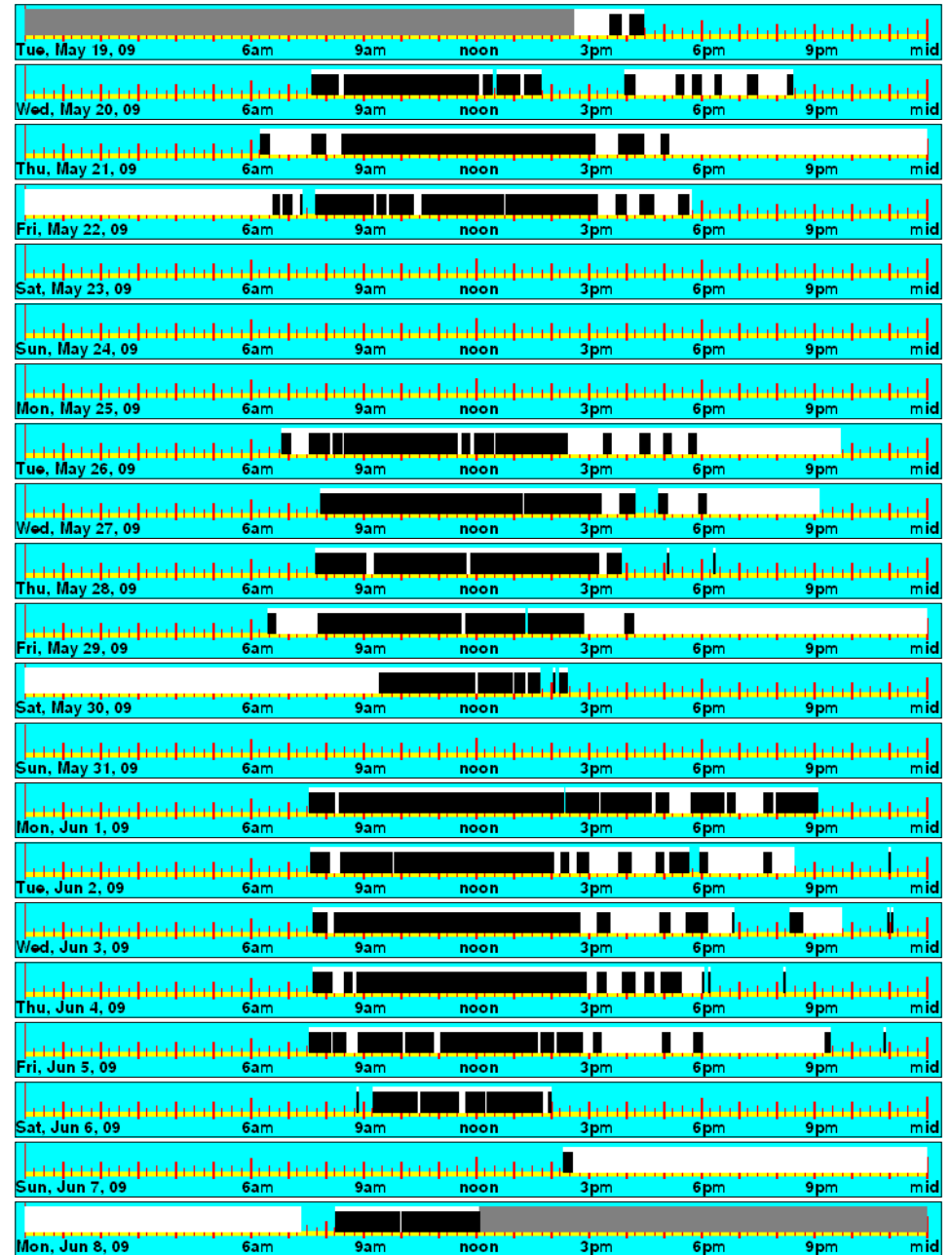
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	48.633	16.211	22.533	7.511
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	48.633	16.211	22.533	7.511

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	202.717	109.283	477.467	71.327	38.452	46.1%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	202.717	109.283	477.467	71.327	38.452	46.1%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	3.222	0.078	9.804	6.077	12.244	6.736	11.844	7.711	12.133	7.944	16.211	7.511	6.222	2.744
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	3.222	0.078	9.804	6.077	12.244	6.736	11.844	7.711	12.133	7.944	16.211	7.511	6.222	2.744

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	202.717	109.283	477.467	^ ^ ^ ^	71.327	38.452	46.1%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	202.717	109.283	477.467		71.327	38.452	46.1%



ROOM 104 CUSTODIAN

Area type: Storage. Logger: 23748. Time delay 10 minutes. NORESKO, NEWTON - OAK HILL MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	56.283	24.000	32.533	13.873	24.667	10.518
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	56.283	24.000	32.533	13.873	24.667	10.518

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	40.967	13.656	32.867	10.956
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	40.967	13.656	32.867	10.956

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	12.300	4.100	10.100	3.367
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	12.300	4.100	10.100	3.367

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	59.850	24.000	22.083	8.855	17.150	6.877
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	59.850	24.000	22.083	8.855	17.150	6.877

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	45.667	15.222	32.467	10.822
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	45.667	15.222	32.467	10.822

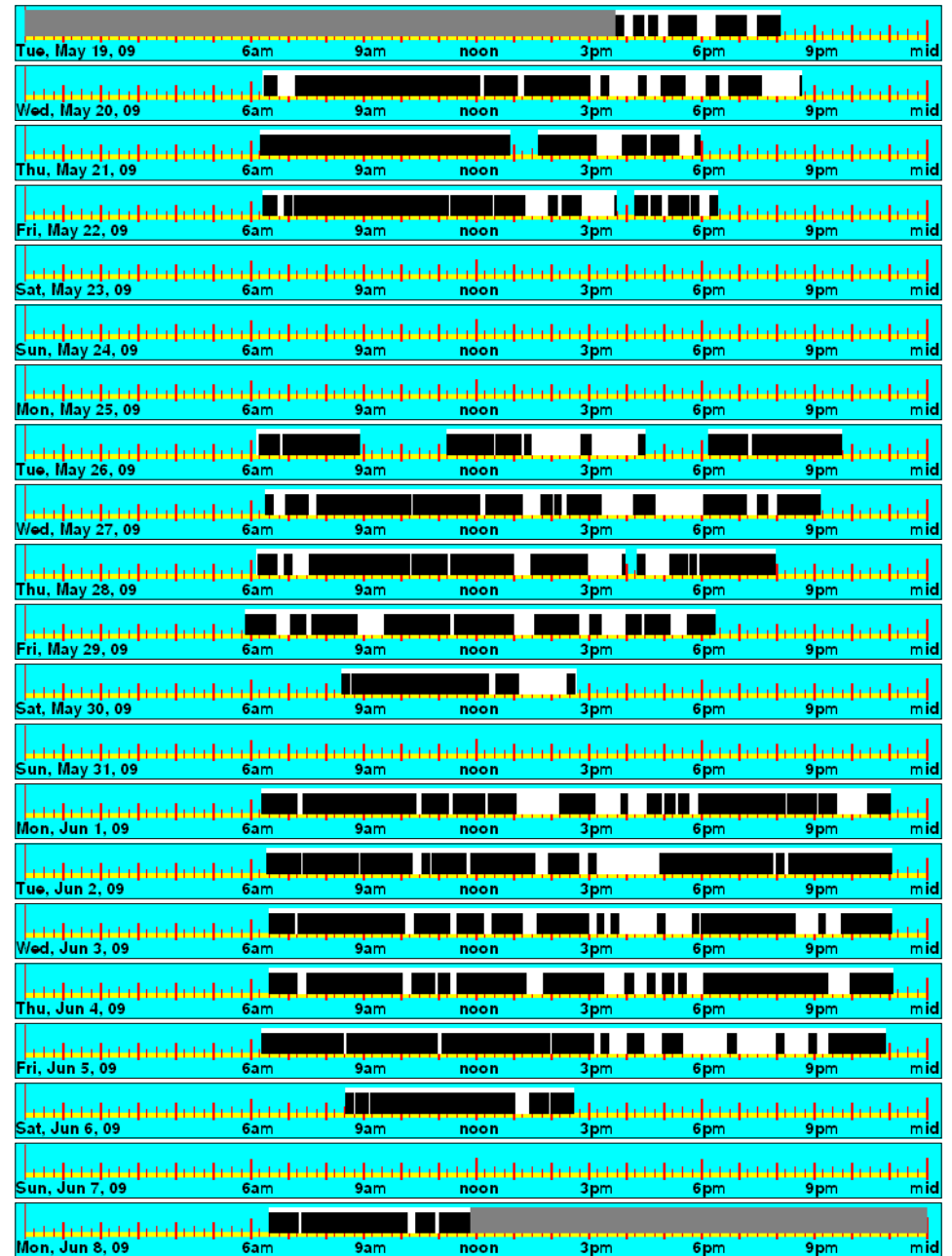
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	40.700	13.567	29.533	9.844
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	40.700	13.567	29.533	9.844

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	194.250	146.783	476.133	68.540	51.791	24.4%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	194.250	146.783	476.133	68.540	51.791	24.4%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	8.855	6.877	13.873	10.518	15.222	10.822	13.656	10.956	13.567	9.844	4.100	3.367
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	8.855	6.877	13.873	10.518	15.222	10.822	13.656	10.956	13.567	9.844	4.100	3.367

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	194.250	146.783	476.133	^ ^ ^ ^	68.540	51.791	24.4%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	194.250	146.783	476.133		68.540	51.791	24.4%



ROOM 119A

Area type: Meeting Rooms. Logger: 20637. Time delay 10 minutes. NORESCO, NEWTON - OAK HILL MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	14.133	4.711	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	14.133	4.711	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	57.483	24.000	18.033	7.529	11.533	4.815
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	57.483	24.000	18.033	7.529	11.533	4.815

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	22.733	7.578	18.633	6.211
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	22.733	7.578	18.633	6.211

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	24.000	8.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	24.000	8.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	59.983	24.000	12.100	4.841	8.200	3.281
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	59.983	24.000	12.100	4.841	8.200	3.281

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	25.367	8.456	22.100	7.367
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	25.367	8.456	22.100	7.367

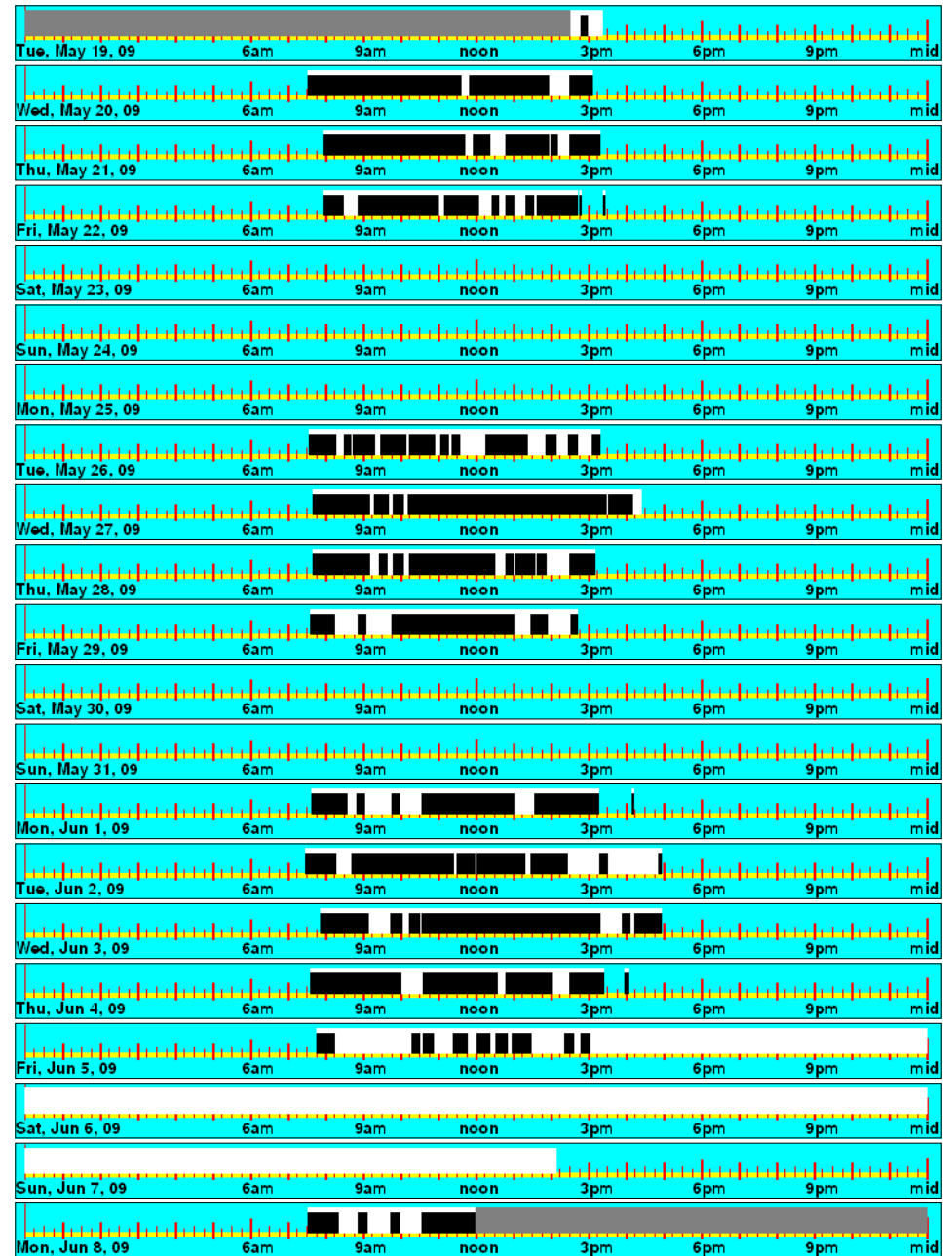
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	30.133	10.044	12.767	4.256
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	30.133	10.044	12.767	4.256

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	146.500	73.233	477.467	51.547	25.768	50.0%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	146.500	73.233	477.467	51.547	25.768	50.0%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	4.711	0.000	4.841	3.281	7.529	4.815	8.456	7.367	7.578	6.211	10.044	4.256	8.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	4.711	0.000	4.841	3.281	7.529	4.815	8.456	7.367	7.578	6.211	10.044	4.256	8.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	146.500	73.233	477.467	^ ^ ^ ^	51.547	25.768	50.0%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	146.500	73.233	477.467		51.547	25.768	50.0%



rROOM 11A

Area type: Classroom. Logger: 23653. Time delay 10 minutes. NORESKO, NEWTON - OAK HILL MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	56.833	24.000	16.167	6.827	7.967	3.364
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	56.833	24.000	16.167	6.827	7.967	3.364

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	21.433	7.144	16.733	5.578
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	21.433	7.144	16.733	5.578

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	7.333	2.444	6.567	2.189
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	7.333	2.444	6.567	2.189

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	61.183	24.000	13.017	5.106	8.733	3.426
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	61.183	24.000	13.017	5.106	8.733	3.426

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	19.367	6.456	15.133	5.044
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	19.367	6.456	15.133	5.044

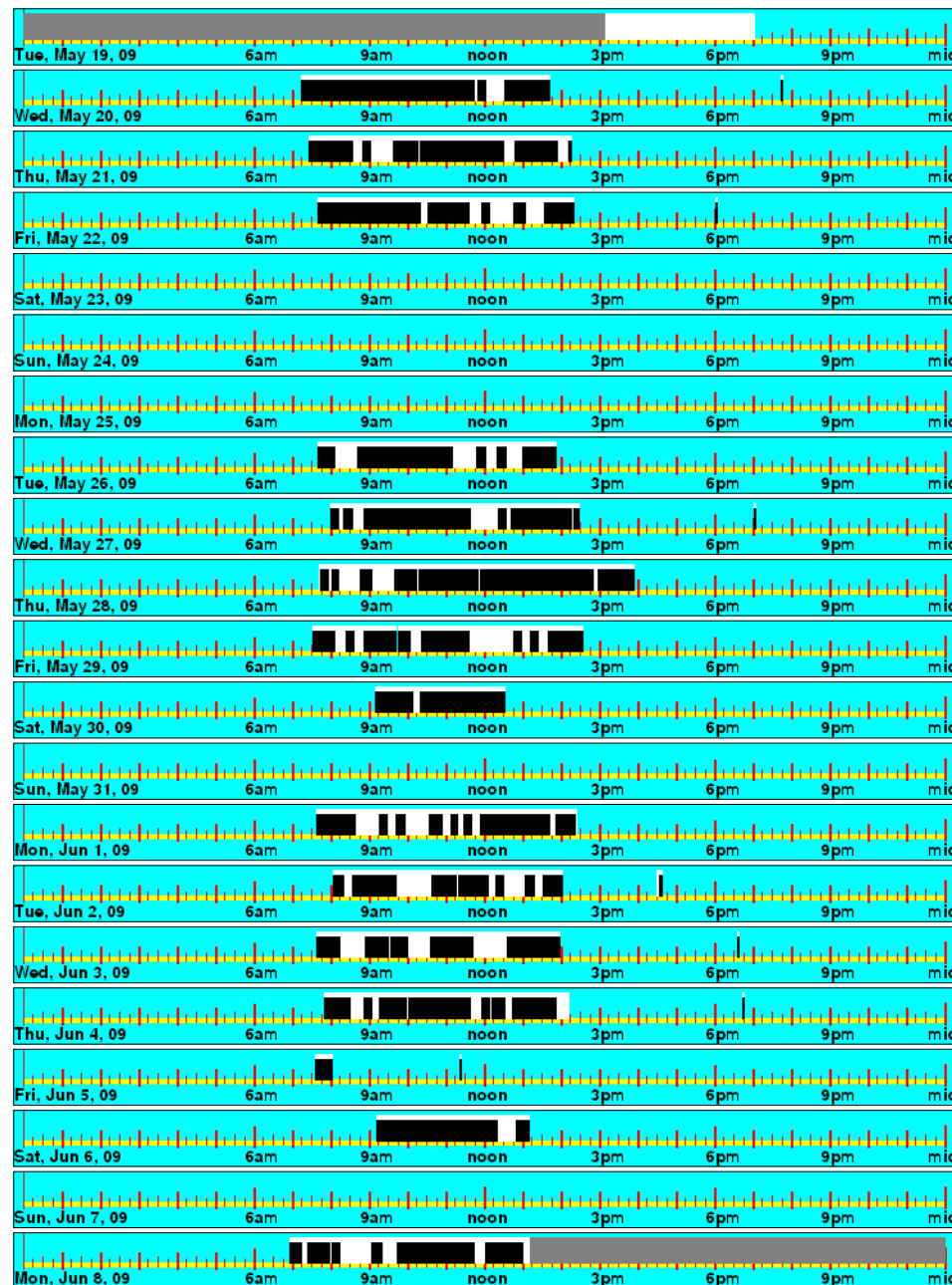
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	14.133	4.711	9.900	3.300
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	14.133	4.711	9.900	3.300

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	91.450	65.033	478.017	32.140	22.856	28.9%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	91.450	65.033	478.017	32.140	22.856	28.9%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	5.106	3.426	6.827	3.364	6.456	5.044	7.144	5.578	4.711	3.300	2.444	2.189
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	5.106	3.426	6.827	3.364	6.456	5.044	7.144	5.578	4.711	3.300	2.444	2.189

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	91.450	65.033	478.017	^ ^ ^ ^	32.140	22.856	28.9%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	91.450	65.033	478.017		32.140	22.856	28.9%



ROOM 12 CUSTODIAN

Area type: Storage. Logger: 24222. Time delay 10 minutes. NORESCO, NEWTON - OAK HILL MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	24.000	24.000	24.000	24.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	24.000	24.000	24.000	24.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	24.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	24.000	24.000	0.000	0.000	0.000	0.000

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	24.000	24.000	24.000	24.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	24.000	24.000	24.000	24.000	0.000	0.000

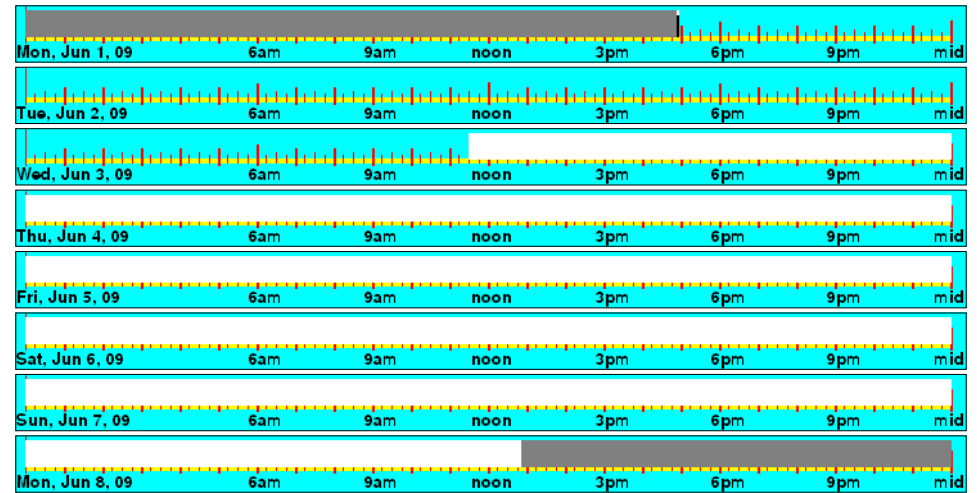
Sat	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	24.000	24.000	24.000	24.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	24.000	24.000	24.000	24.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	19.950	24.000	12.867	15.479	0.033	0.040
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	19.950	24.000	12.867	15.479	0.033	0.040

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	24.000	24.000	12.500	12.500	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	24.000	24.000	12.500	12.500	0.000	0.000

Fri	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	24.000	24.000	24.000	24.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	24.000	24.000	24.000	24.000	0.000	0.000

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	121.367	0.033	163.950	124.365	0.034	100.0%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	121.367	0.033	163.950	124.365	0.034	100.0%



Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	24.000	0.000	15.479	0.040	0.000	0.000	12.500	0.000	24.000	0.000	24.000	0.000	24.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	24.000	0.000	15.479	0.040	0.000	0.000	12.500	0.000	24.000	0.000	24.000	0.000	24.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	121.367	0.033	163.950	^ ^ ^ ^	124.365	0.034	100.0%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	121.367	0.033	163.950		124.365	0.034	100.0%

ROOM 126

Area type: Classroom. Logger: 22549. Time delay 10 minutes. NORESO, NEWTON - OAK HILL MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normalized Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normalized Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	57.500	24.000	14.400	6.010	12.267	5.120
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	57.500	24.000	14.400	6.010	12.267	5.120

Thu	Total Log Time	Hours /Day	Logged Lites On	Normalized Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	19.833	6.611	16.933	5.644
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	19.833	6.611	16.933	5.644

Sat	Total Log Time	Hours /Day	Logged Lites On	Normalized Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	5.467	1.822	2.933	0.978
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	5.467	1.822	2.933	0.978

Mon	Total Log Time	Hours /Day	Logged Lites On	Normalized Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	59.950	24.000	11.100	4.444	10.767	4.310
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	59.950	24.000	11.100	4.444	10.767	4.310

Wed	Total Log Time	Hours /Day	Logged Lites On	Normalized Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	21.600	7.200	19.400	6.467
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	21.600	7.200	19.400	6.467

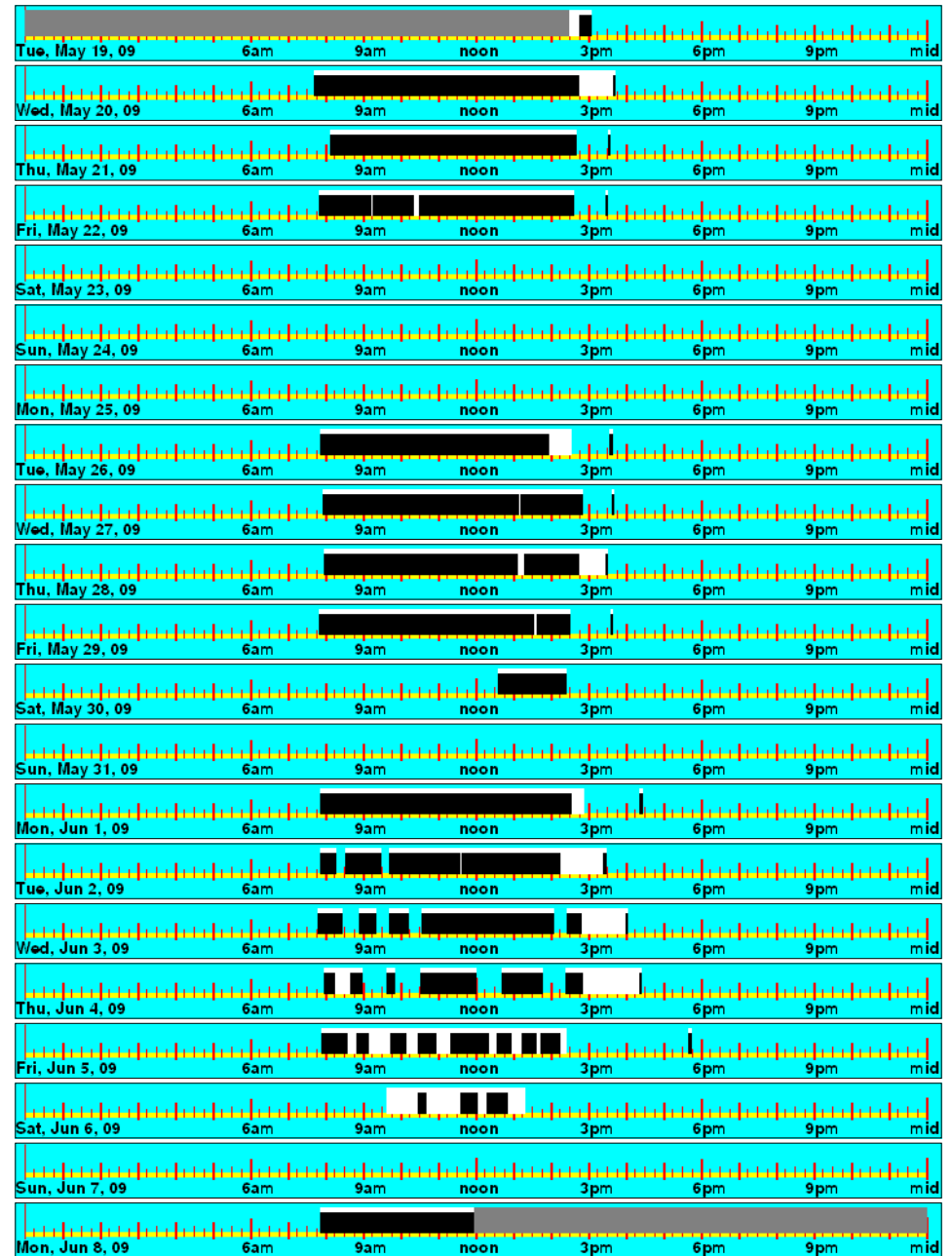
Fri	Total Log Time	Hours /Day	Logged Lites On	Normalized Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	20.067	6.689	17.267	5.756
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	20.067	6.689	17.267	5.756

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	92.467	79.567	477.450	32.536	27.997	14.0%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	92.467	79.567	477.450	32.536	27.997	14.0%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	4.444	4.310	6.010	5.120	7.200	6.467	6.611	5.644	6.689	5.756	1.822	0.978
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	4.444	4.310	6.010	5.120	7.200	6.467	6.611	5.644	6.689	5.756	1.822	0.978

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	92.467	79.567	477.450	^ ^ ^ ^	32.536	27.997	14.0%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	92.467	79.567	477.450		32.536	27.997	14.0%



ROOM 202 - GIRLS ROOM

Area type: Restroom. Logger: 21748. Time delay 10 minutes. NORESO, NEWTON - OAK HILL MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	57.183	24.000	23.100	9.695	11.000	4.617
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	57.183	24.000	23.100	9.695	11.000	4.617

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	24.867	8.289	18.467	6.156
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	24.867	8.289	18.467	6.156

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	60.733	24.000	4.850	1.917	4.017	1.587
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	60.733	24.000	4.850	1.917	4.017	1.587

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	31.400	10.467	19.533	6.511
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	31.400	10.467	19.533	6.511

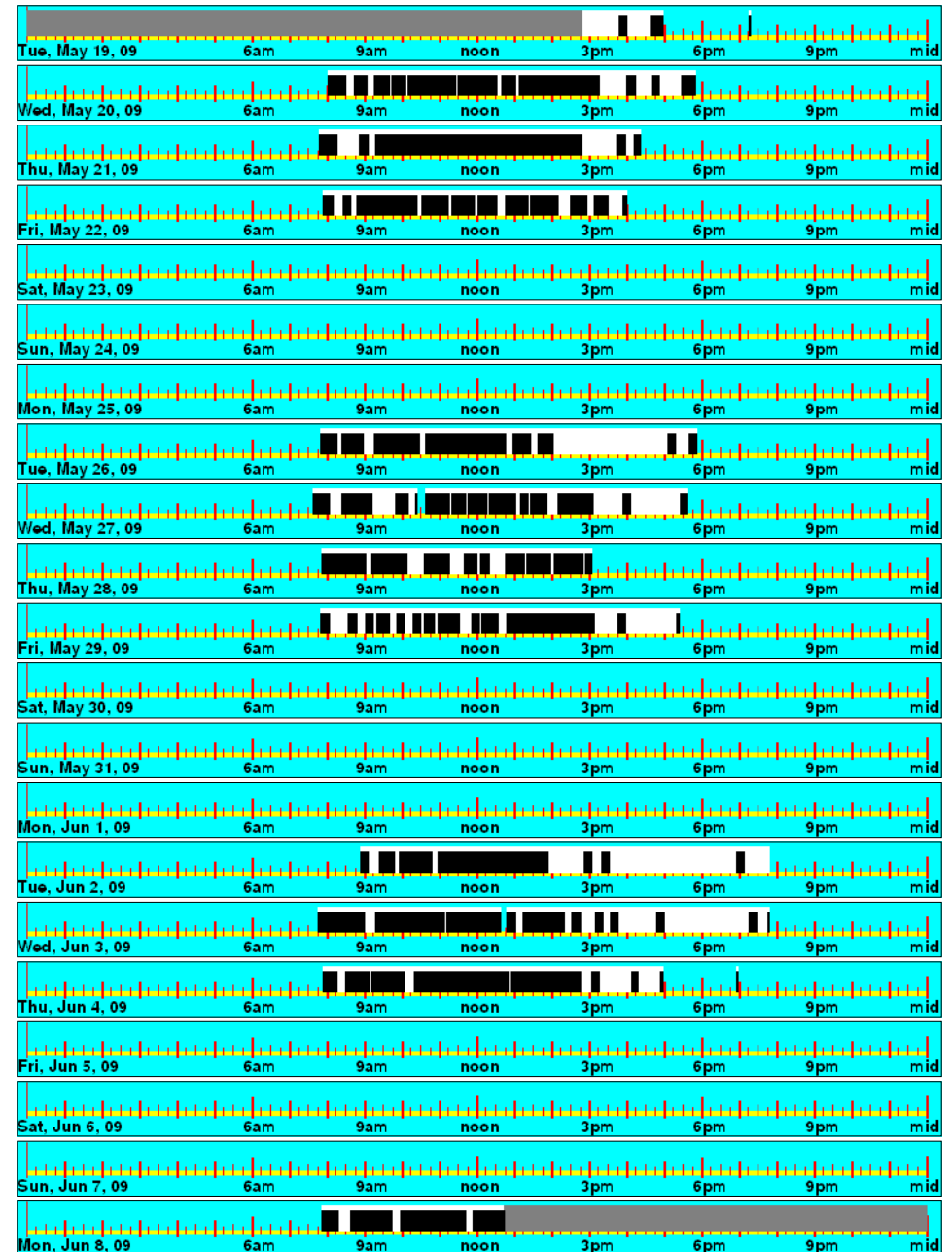
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	17.667	5.889	11.533	3.844
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	17.667	5.889	11.533	3.844

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	101.883	64.550	477.917	35.815	22.691	36.6%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	101.883	64.550	477.917	35.815	22.691	36.6%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	1.917	1.587	9.695	4.617	10.467	6.511	8.289	6.156	5.889	3.844	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	1.917	1.587	9.695	4.617	10.467	6.511	8.289	6.156	5.889	3.844	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	101.883	64.550	477.917	^ ^ ^ ^	35.815	22.691	36.6%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	101.883	64.550	477.917		35.815	22.691	36.6%



ROOM 203 - BOYS ROOM

Area type: Restroom. Logger: 24955. Time delay 10 minutes. NORESKO, NEWTON - OAK HILL MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	72.000	24.000	0.867	0.289
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	72.000	24.000	0.867	0.289

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	56.667	24.000	56.667	24.000	30.267	12.819
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	56.667	24.000	56.667	24.000	30.267	12.819

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	72.000	24.000	37.600	12.533
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	72.000	24.000	37.600	12.533

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	72.000	24.000	12.533	4.178
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	72.000	24.000	12.533	4.178

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	61.033	24.000	61.017	23.993	21.983	8.644
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	61.033	24.000	61.017	23.993	21.983	8.644

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	72.000	24.000	42.067	14.022
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	72.000	24.000	42.067	14.022

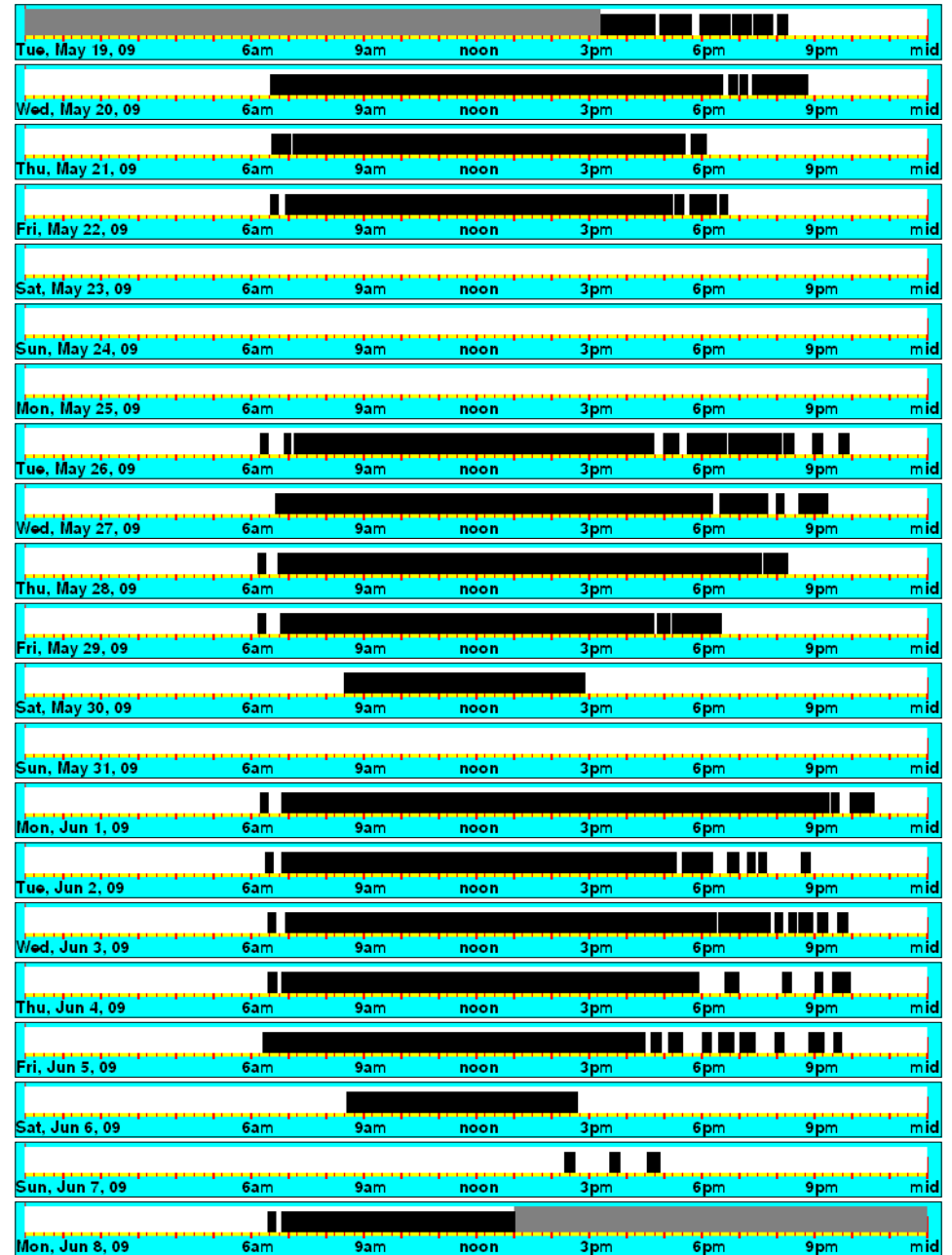
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	72.000	24.000	36.033	12.011
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	72.000	24.000	36.033	12.011

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	477.683	181.350	477.700	167.994	63.778	62.0%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	477.683	181.350	477.700	167.994	63.778	62.0%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	24.000	0.289	23.993	8.644	24.000	12.819	24.000	14.022	24.000	12.533	24.000	12.011	24.000	4.178
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	24.000	0.289	23.993	8.644	24.000	12.819	24.000	14.022	24.000	12.533	24.000	12.011	24.000	4.178

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	477.683	181.350	477.700	^ ^ ^ ^	167.994	63.778	62.0%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	477.683	181.350	477.700		167.994	63.778	62.0%



ROOM 218A

Area type: Storage. Logger: 23712. Time delay 10 minutes. NORESO, NEWTON - OAK HILL MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	57.267	24.000	20.867	8.745	5.367	2.249
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	57.267	24.000	20.867	8.745	5.367	2.249

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	60.150	20.050	11.333	3.778
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	60.150	20.050	11.333	3.778

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	9.950	3.317	0.100	0.033
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	9.950	3.317	0.100	0.033

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	60.233	24.000	4.633	1.846	1.867	0.744
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	60.233	24.000	4.633	1.846	1.867	0.744

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	48.267	16.089	9.600	3.200
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	48.267	16.089	9.600	3.200

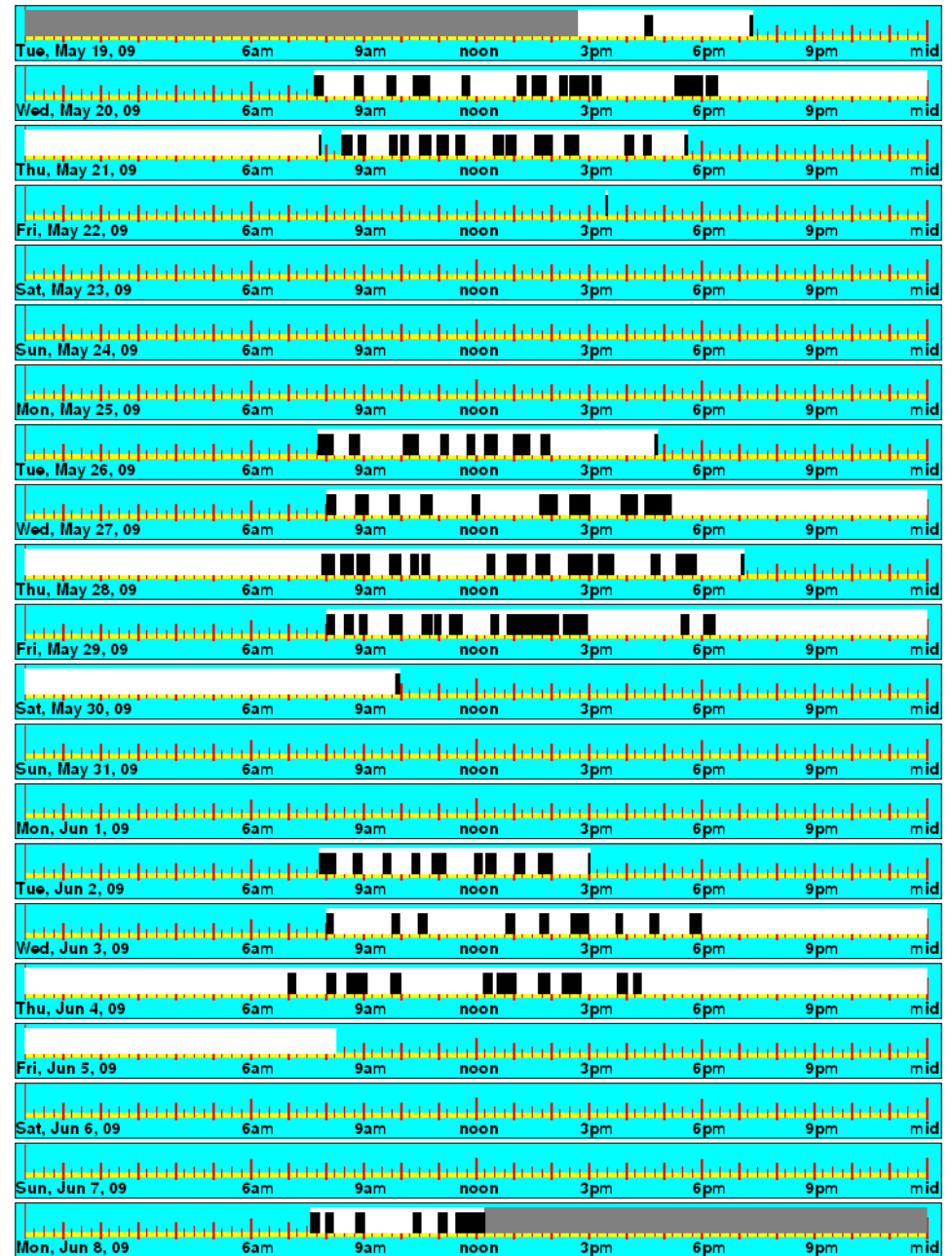
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	24.267	8.089	4.400	1.467
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	24.267	8.089	4.400	1.467

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	168.133	32.667	477.500	59.155	11.493	80.6%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	168.133	32.667	477.500	59.155	11.493	80.6%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	1.846	0.744	8.745	2.249	16.089	3.200	20.050	3.778	8.089	1.467	3.317	0.033
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	1.846	0.744	8.745	2.249	16.089	3.200	20.050	3.778	8.089	1.467	3.317	0.033

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	168.133	32.667	477.500	^ ^ ^ ^	59.155	11.493	80.6%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	168.133	32.667	477.500		59.155	11.493	80.6%



ROOM 222 - MEDIA CENTER

Area type: Open Space. Logger: 23144. Time delay 10 minutes. NORESCO, NEWTON - OAK HILL MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	71.900	23.967	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	71.900	23.967	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	57.133	24.000	32.083	13.477	15.800	6.637
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	57.133	24.000	32.083	13.477	15.800	6.637

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	39.767	13.256	22.667	7.556
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	39.767	13.256	22.667	7.556

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	62.800	20.933	0.233	0.078
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	62.800	20.933	0.233	0.078

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	60.533	24.000	49.400	19.586	14.100	5.590
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	60.533	24.000	49.400	19.586	14.100	5.590

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	43.567	14.522	28.100	9.367
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	43.567	14.522	28.100	9.367

Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	59.967	19.989	19.267	6.422
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	59.967	19.989	19.267	6.422

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	359.483	100.167	477.667	126.434	35.230	72.1%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	359.483	100.167	477.667	126.434	35.230	72.1%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	23.967	0.000	19.586	5.590	13.477	6.637	14.522	9.367	13.256	7.556	19.989	6.422	20.933	0.078
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	23.967	0.000	19.586	5.590	13.477	6.637	14.522	9.367	13.256	7.556	19.989	6.422	20.933	0.078

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	359.483	100.167	477.667	^ ^ ^ ^	126.434	35.230	72.1%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	359.483	100.167	477.667		126.434	35.230	72.1%



ROOM 235

Area type: Classroom. Logger: 24894. Time delay 10 minutes. NORESKO, NEWTON - OAK HILL MIDDLE SCHOOL

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	57.067	24.000	10.967	4.612	9.967	4.192
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	57.067	24.000	10.967	4.612	9.967	4.192

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	17.067	5.689	15.833	5.278
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	17.067	5.689	15.833	5.278

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	7.233	2.411	7.233	2.411
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	7.233	2.411	7.233	2.411

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	60.600	24.000	9.500	3.762	8.833	3.498
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	60.600	24.000	9.500	3.762	8.833	3.498

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	20.367	6.789	17.433	5.811
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	20.367	6.789	17.433	5.811

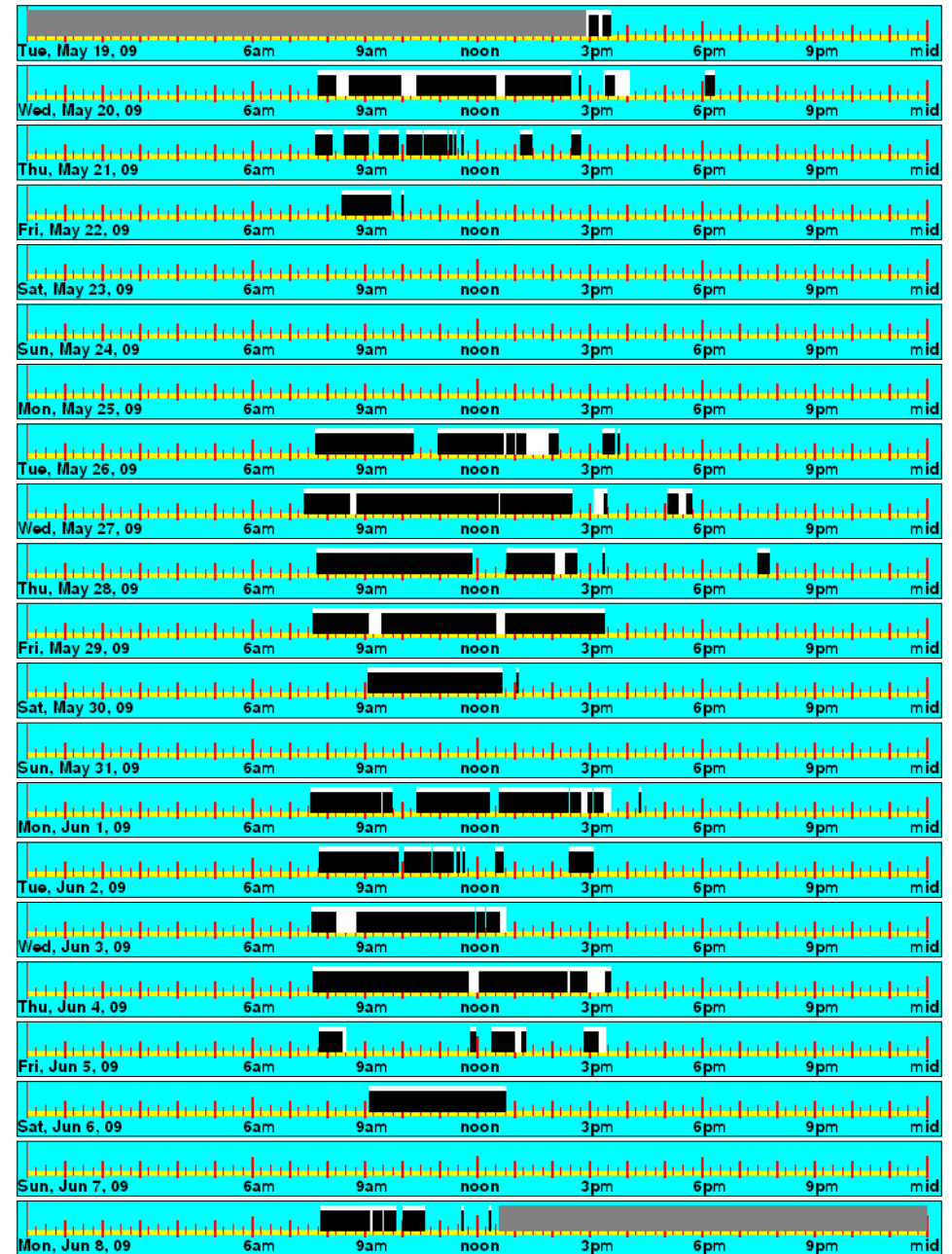
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	11.267	3.756	10.133	3.378
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	11.267	3.756	10.133	3.378

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	76.400	69.433	477.667	26.871	24.420	9.1%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	76.400	69.433	477.667	26.871	24.420	9.1%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	3.762	3.498	4.612	4.192	6.789	5.811	5.689	5.278	3.756	3.378	2.411	2.411
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	3.762	3.498	4.612	4.192	6.789	5.811	5.689	5.278	3.756	3.378	2.411	2.411

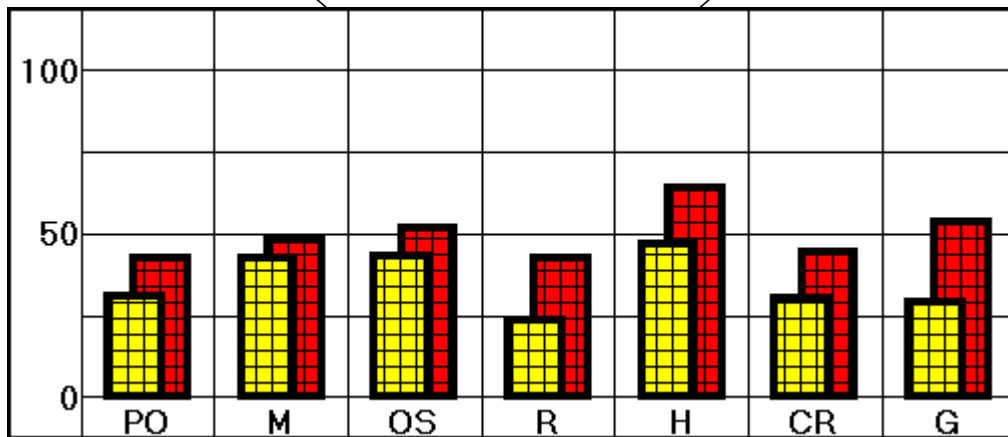
	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	76.400	69.433	477.667	^ ^ ^ ^	26.871	24.420	9.1%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	76.400	69.433	477.667		26.871	24.420	9.1%



Area Type Averages

Noresco, Newton education center

Area Type Averages				Normalized Weekly Lights On					Normalized Weekly Occupied					
Area Type	Qty	Watts		Peak	Off	Shldr 1	Shldr 2	Total	Peak	Off	Shldr 1	Shldr 2	Total	% sav
Private Office	PO	7	187	42.76	0.00	0.00	0.00	42.76	30.77	0.00	0.00	0.00	30.77	28.04%
Meeting Rooms	M	1	800	48.03	0.00	0.00	0.00	48.03	42.48	0.00	0.00	0.00	42.48	11.56%
Open Space	OS	6	642	51.52	0.00	0.00	0.00	51.52	43.19	0.00	0.00	0.00	43.19	16.17%
Restroom	R	4	210	42.74	0.00	0.00	0.00	42.74	23.57	0.00	0.00	0.00	23.57	44.85%
Hallway	H	3	527	64.20	0.00	0.00	0.00	64.20	46.73	0.00	0.00	0.00	46.73	27.21%
Classroom	CR	7	334	44.02	0.00	0.00	0.00	44.02	30.48	0.00	0.00	0.00	30.48	30.76%
Gym	G	1	550	53.54	0.00	0.00	0.00	53.54	29.18	0.00	0.00	0.00	29.18	45.50%
Building Average			11270	49.92			0.00	49.92	37.41			0.00	37.41	25.06%



Hours per Week for each Area Type

Data Logger Detail for Noresco, Newton education center Page 1 of 1

All Loggers Listed			Hours Installed							Lights On					Occupied				
Logger	Room Location	Ty	Total	Peak	Off	Shldr 1	Shldr 2	Installed	Removed	Peak	Off	Shldr 1	Shldr 2	Total	Peak	Off	Shldr 1	Shldr 2	Total
25029	boys rm.	R	482.52	482.52	0.00	0.00	0.00	5/19/09 1:29 PM	6/08/09 3:59 PM	149.50	0.00	0.00	0.00	149.50	88.00	0.00	0.00	0.00	88.00
22935	girls rm.	R	482.55	482.55	0.00	0.00	0.00	5/19/09 1:28 PM	6/08/09 4:00 PM	157.63	0.00	0.00	0.00	157.63	85.07	0.00	0.00	0.00	85.07
22583	hall outside rm. 314	H	482.60	482.60	0.00	0.00	0.00	5/19/09 12:16 PM	6/08/09 2:51 PM	191.02	0.00	0.00	0.00	191.02	144.10	0.00	0.00	0.00	144.10
23076	hall outside rm.#102	H	482.48	482.48	0.00	0.00	0.00	5/19/09 1:36 PM	6/08/09 4:04 PM	173.30	0.00	0.00	0.00	173.30	128.40	0.00	0.00	0.00	128.40
24313	hall to rm. #114	H	482.48	482.48	0.00	0.00	0.00	5/19/09 1:26 PM	6/08/09 3:54 PM	188.85	0.00	0.00	0.00	188.85	130.18	0.00	0.00	0.00	130.18
24953	mens rm.	R	482.58	482.58	0.00	0.00	0.00	5/19/09 12:52 PM	6/08/09 3:26 PM	138.07	0.00	0.00	0.00	138.07	79.13	0.00	0.00	0.00	79.13
22150	mens rm.	R	482.60	482.60	0.00	0.00	0.00	5/19/09 12:33 PM	6/08/09 3:08 PM	45.90	0.00	0.00	0.00	45.90	18.57	0.00	0.00	0.00	18.57
24401	rm. 107	CR	482.48	482.48	0.00	0.00	0.00	5/19/09 1:30 PM	6/08/09 3:58 PM	138.87	0.00	0.00	0.00	138.87	117.00	0.00	0.00	0.00	117.00
21623	rm. 202	PO	482.62	482.62	0.00	0.00	0.00	5/19/09 12:45 PM	6/08/09 3:21 PM	101.23	0.00	0.00	0.00	101.23	90.67	0.00	0.00	0.00	90.67
25014	rm. 318	M	482.68	482.68	0.00	0.00	0.00	5/19/09 12:36 PM	6/08/09 3:16 PM	137.98	0.00	0.00	0.00	137.98	122.05	0.00	0.00	0.00	122.05
24960	rm.102	OS	482.45	482.45	0.00	0.00	0.00	5/19/09 1:37 PM	6/08/09 4:03 PM	138.53	0.00	0.00	0.00	138.53	115.60	0.00	0.00	0.00	115.60
21286	rm.112gym	G	482.52	482.52	0.00	0.00	0.00	5/19/09 1:21 PM	6/08/09 3:51 PM	153.77	0.00	0.00	0.00	153.77	83.80	0.00	0.00	0.00	83.80
23631	rm.113	CR	482.50	482.50	0.00	0.00	0.00	5/19/09 1:22 PM	6/08/09 3:51 PM	170.25	0.00	0.00	0.00	170.25	97.73	0.00	0.00	0.00	97.73
23959	rm.114	CR	482.52	482.52	0.00	0.00	0.00	5/19/09 1:23 PM	6/08/09 3:53 PM	99.98	0.00	0.00	0.00	99.98	46.57	0.00	0.00	0.00	46.57
24567	rm.117	PO	482.53	482.53	0.00	0.00	0.00	5/19/09 1:18 PM	6/08/09 3:49 PM	139.12	0.00	0.00	0.00	139.12	104.72	0.00	0.00	0.00	104.72
23970	rm.117	PO	482.55	482.55	0.00	0.00	0.00	5/19/09 1:17 PM	6/08/09 3:49 PM	159.92	0.00	0.00	0.00	159.92	123.98	0.00	0.00	0.00	123.98
24298	rm.120	CR	482.55	482.55	0.00	0.00	0.00	5/19/09 1:15 PM	6/08/09 3:47 PM	115.85	0.00	0.00	0.00	115.85	88.83	0.00	0.00	0.00	88.83
22624	rm.122	CR	482.53	482.53	0.00	0.00	0.00	5/19/09 1:13 PM	6/08/09 3:44 PM	132.68	0.00	0.00	0.00	132.68	75.10	0.00	0.00	0.00	75.10
24795	rm.127	CR	482.52	482.52	0.00	0.00	0.00	5/19/09 1:11 PM	6/08/09 3:41 PM	120.60	0.00	0.00	0.00	120.60	101.13	0.00	0.00	0.00	101.13
23114	rm.200	OS	506.23	506.23	0.00	0.00	0.00	5/19/09 12:47 PM	6/09/09 3:00 PM	122.10	0.00	0.00	0.00	122.10	104.87	0.00	0.00	0.00	104.87
24630	rm.213	OS	482.57	482.57	0.00	0.00	0.00	5/19/09 12:58 PM	6/08/09 3:31 PM	207.32	0.00	0.00	0.00	207.32	145.65	0.00	0.00	0.00	145.65
22249	rm.215	OS	482.58	482.58	0.00	0.00	0.00	5/19/09 1:05 PM	6/08/09 3:39 PM	143.78	0.00	0.00	0.00	143.78	128.60	0.00	0.00	0.00	128.60
21964	rm.216	PO	482.58	482.58	0.00	0.00	0.00	5/19/09 1:02 PM	6/08/09 3:36 PM	212.07	0.00	0.00	0.00	212.07	123.03	0.00	0.00	0.00	123.03
22220	rm.219	OS	482.55	482.55	0.00	0.00	0.00	5/19/09 1:07 PM	6/08/09 3:39 PM	140.53	0.00	0.00	0.00	140.53	126.12	0.00	0.00	0.00	126.12
23677	rm.314	PO	482.60	482.60	0.00	0.00	0.00	5/19/09 12:14 PM	6/08/09 2:49 PM	77.38	0.00	0.00	0.00	77.38	65.78	0.00	0.00	0.00	65.78
23993	rm.317	CR	482.63	482.63	0.00	0.00	0.00	5/19/09 12:27 PM	6/08/09 3:04 PM	106.85	0.00	0.00	0.00	106.85	86.42	0.00	0.00	0.00	86.42
24803	rm.320	PO	482.57	482.57	0.00	0.00	0.00	5/19/09 12:24 PM	6/08/09 2:57 PM	85.33	0.00	0.00	0.00	85.33	49.70	0.00	0.00	0.00	49.70
22361	rm.320	OS	482.58	482.58	0.00	0.00	0.00	5/19/09 12:22 PM	6/08/09 2:56 PM	141.40	0.00	0.00	0.00	141.40	128.47	0.00	0.00	0.00	128.47
23275	rm219	PO	482.55	482.55	0.00	0.00	0.00	5/19/09 1:08 PM	6/08/09 3:40 PM	84.60	0.00	0.00	0.00	84.60	60.77	0.00	0.00	0.00	60.77

Normalized Data Logger Detail for Noresco, Newton education center Page 1 of 1

All Loggers Listed			Load	Normalized Weekly Hours of Use					Normalized Weekly Hours of Occupancy					
Logger	Room Location	Ty	Watts	Peak	Off	Shldr 1	Shldr 2	Total	Peak	Off	Shldr 1	Shldr 2	Total	% sav
25029	boys rm.	R	220	52.05	0.00	0.00	0.00	52.05	30.64	0.00	0.00	0.00	30.64	41.13%
22935	girls rm.	R	220	54.88	0.00	0.00	0.00	54.88	29.62	0.00	0.00	0.00	29.62	46.03%
22583	hall outside rm.	H	1100	66.50	0.00	0.00	0.00	66.50	50.16	0.00	0.00	0.00	50.16	24.57%
23076	hall outside	H	300	60.34	0.00	0.00	0.00	60.34	44.71	0.00	0.00	0.00	44.71	25.90%
24313	hall to rm. #114	H	180	65.76	0.00	0.00	0.00	65.76	45.33	0.00	0.00	0.00	45.33	31.07%
24953	mens rm.	R	170	48.06	0.00	0.00	0.00	48.06	27.55	0.00	0.00	0.00	27.55	42.68%
22150	mens rm.	R	230	15.98	0.00	0.00	0.00	15.98	6.46	0.00	0.00	0.00	6.46	59.57%
24401	rm. 107	CR	360	48.35	0.00	0.00	0.00	48.35	40.74	0.00	0.00	0.00	40.74	15.74%
21623	rm. 202	PO	180	35.24	0.00	0.00	0.00	35.24	31.56	0.00	0.00	0.00	31.56	10.44%
25014	rm. 318	M	800	48.03	0.00	0.00	0.00	48.03	42.48	0.00	0.00	0.00	42.48	11.56%
24960	rm.102	OS	600	48.24	0.00	0.00	0.00	48.24	40.25	0.00	0.00	0.00	40.25	16.56%
21286	rm.112gym	G	550	53.54	0.00	0.00	0.00	53.54	29.18	0.00	0.00	0.00	29.18	45.50%
23631	rm.113	CR	480	59.28	0.00	0.00	0.00	59.28	34.03	0.00	0.00	0.00	34.03	42.59%
23959	rm.114	CR	120	34.81	0.00	0.00	0.00	34.81	16.21	0.00	0.00	0.00	16.21	53.43%
24567	rm.117	PO	220	48.44	0.00	0.00	0.00	48.44	36.46	0.00	0.00	0.00	36.46	24.73%
23970	rm.117	PO	120	55.68	0.00	0.00	0.00	55.68	43.16	0.00	0.00	0.00	43.16	22.49%
24298	rm.120	CR	360	40.33	0.00	0.00	0.00	40.33	30.93	0.00	0.00	0.00	30.93	23.31%
22624	rm.122	CR	180	46.20	0.00	0.00	0.00	46.20	26.15	0.00	0.00	0.00	26.15	43.40%
24795	rm.127	CR	240	41.99	0.00	0.00	0.00	41.99	35.21	0.00	0.00	0.00	35.21	16.15%
23114	rm.200	OS	240	40.52	0.00	0.00	0.00	40.52	34.80	0.00	0.00	0.00	34.80	14.12%
24630	rm.213	OS	1500	72.17	0.00	0.00	0.00	72.17	50.71	0.00	0.00	0.00	50.71	29.74%
22249	rm.215	OS	330	50.05	0.00	0.00	0.00	50.05	44.77	0.00	0.00	0.00	44.77	10.55%
21964	rm.216	PO	120	73.83	0.00	0.00	0.00	73.83	42.83	0.00	0.00	0.00	42.83	41.99%
22220	rm.219	OS	550	48.93	0.00	0.00	0.00	48.93	43.91	0.00	0.00	0.00	43.91	10.26%
23677	rm.314	PO	440	26.94	0.00	0.00	0.00	26.94	22.90	0.00	0.00	0.00	22.90	15.00%
23993	rm.317	CR	600	37.19	0.00	0.00	0.00	37.19	30.08	0.00	0.00	0.00	30.08	19.12%
24803	rm.320	PO	110	29.71	0.00	0.00	0.00	29.71	17.30	0.00	0.00	0.00	17.30	41.77%
22361	rm.320	OS	630	49.23	0.00	0.00	0.00	49.23	44.72	0.00	0.00	0.00	44.72	9.16%
23275	rm219	PO	120	29.45	0.00	0.00	0.00	29.45	21.16	0.00	0.00	0.00	21.16	28.15%

Building Summary Totals for Noresco, Newton education center Page 1 of 1

Building Summary Totals				Lights On KWHR					Occupied KWHR				
Area Type		Qty	Watts	Peak	Off	Shldr 1	Shldr 2	Total	Peak	Off	Shldr 1	Shldr 2	Total
Private Office	PO	7	1309	56	0	0	0	56	40	0	0	0	40
Meeting Rooms	M	1	800	38	0	0	0	38	34	0	0	0	34
Open Space	OS	6	3852	198	0	0	0	198	166	0	0	0	166
Restroom	R	4	840	36	0	0	0	36	20	0	0	0	20
Hallway	H	3	1581	102	0	0	0	102	74	0	0	0	74
Classroom	CR	7	2338	103	0	0	0	103	71	0	0	0	71
Gym	G	1	550	29	0	0	0	29	16	0	0	0	16
Building Totals			11270	563			0	563	422			0	422

boys rm.

Area type: Restroom. Logger: 25029. Time delay 10 minutes. Noresco, Newton education center

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	58.533	24.000	31.767	13.025	17.100	7.011
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	58.533	24.000	31.767	13.025	17.100	7.011

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	36.400	12.133	21.967	7.322
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	36.400	12.133	21.967	7.322

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	63.983	24.000	17.267	6.477	12.800	4.801
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	63.983	24.000	17.267	6.477	12.800	4.801

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	32.933	10.978	21.167	7.056
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	32.933	10.978	21.167	7.056

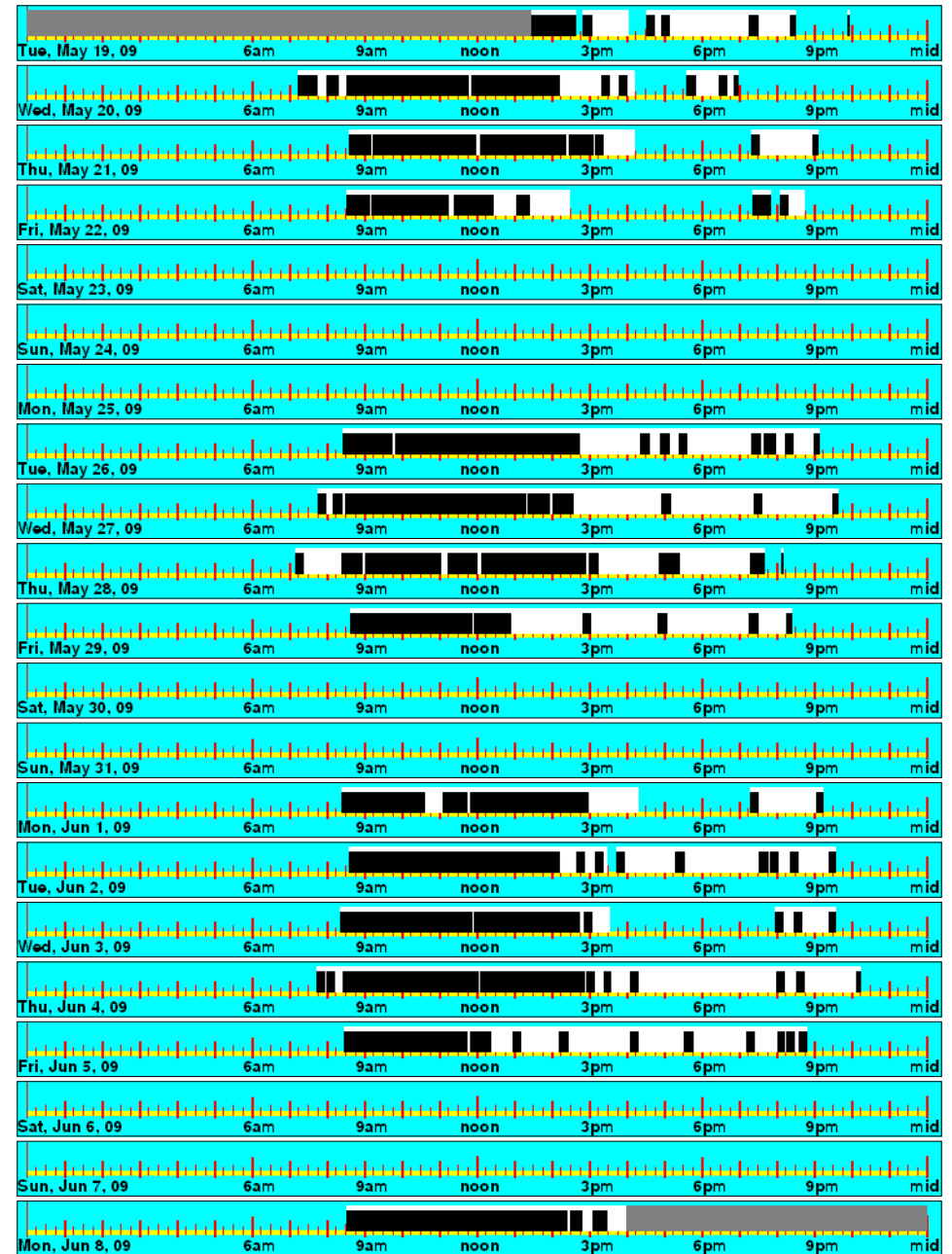
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	31.133	10.378	14.967	4.989
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	31.133	10.378	14.967	4.989

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	149.500	88.000	482.517	52.052	30.639	41.1%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	149.500	88.000	482.517	52.052	30.639	41.1%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	6.477	4.801	13.025	7.011	10.978	7.056	12.133	7.322	10.378	4.989	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	6.477	4.801	13.025	7.011	10.978	7.056	12.133	7.322	10.378	4.989	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	149.500	88.000	482.517	^ ^ ^ ^	52.052	30.639	41.1%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	149.500	88.000	482.517		52.052	30.639	41.1%



girls rm.

Area type: Restroom. Logger: 22935. Time delay 10 minutes. Noresco, Newton education center

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	58.550	24.000	28.800	11.805	16.100	6.599
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	58.550	24.000	28.800	11.805	16.100	6.599

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	36.200	12.067	21.067	7.022
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	36.200	12.067	21.067	7.022

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	64.000	24.000	20.900	7.838	12.133	4.550
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	64.000	24.000	20.900	7.838	12.133	4.550

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	37.567	12.522	21.033	7.011
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	37.567	12.522	21.033	7.011

Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	34.167	11.389	14.733	4.911
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	34.167	11.389	14.733	4.911

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	157.633	85.067	482.550	54.880	29.616	46.0%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	157.633	85.067	482.550	54.880	29.616	46.0%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	7.838	4.550	11.805	6.599	12.522	7.011	12.067	7.022	11.389	4.911	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	7.838	4.550	11.805	6.599	12.522	7.011	12.067	7.022	11.389	4.911	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	157.633	85.067	482.550	^ ^ ^ ^	54.880	29.616	46.0%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	157.633	85.067	482.550		54.880	29.616	46.0%



hall outside rm. 314

Area type: Hallway. Logger: 22583. Time delay 10 minutes. Noresco, Newton education center

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	59.750	24.000	42.300	16.991	27.867	11.193
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	59.750	24.000	42.300	16.991	27.867	11.193

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	43.167	14.389	34.033	11.344
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	43.167	14.389	34.033	11.344

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	62.850	24.000	21.417	8.178	17.833	6.810
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	62.850	24.000	21.417	8.178	17.833	6.810

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	45.767	15.256	33.767	11.256
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	45.767	15.256	33.767	11.256

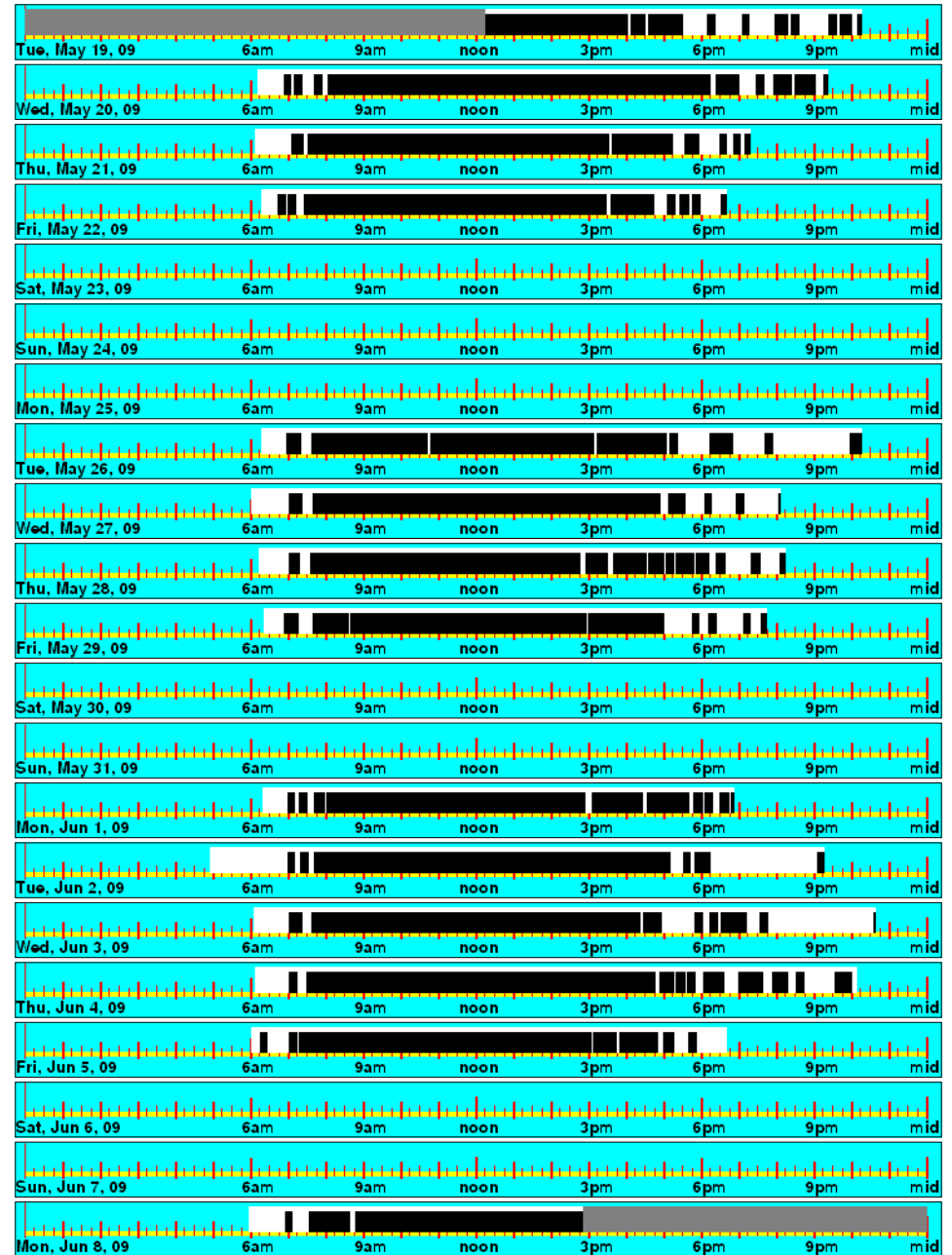
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	38.367	12.789	30.600	10.200
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	38.367	12.789	30.600	10.200

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	191.017	144.100	482.600	66.496	50.163	24.6%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	191.017	144.100	482.600	66.496	50.163	24.6%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	8.178	6.810	16.991	11.193	15.256	11.256	14.389	11.344	12.789	10.200	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	8.178	6.810	16.991	11.193	15.256	11.256	14.389	11.344	12.789	10.200	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	191.017	144.100	482.600	^ ^ ^ ^	66.496	50.163	24.6%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	191.017	144.100	482.600		66.496	50.163	24.6%



hall outside rm.#102

Area type: Hallway. Logger: 23076. Time delay 10 minutes. Noresco, Newton education center

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	58.417	24.000	26.933	11.065	24.533	10.079
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	58.417	24.000	26.933	11.065	24.533	10.079

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	44.933	14.978	30.100	10.033
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	44.933	14.978	30.100	10.033

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	64.067	24.000	23.433	8.778	16.567	6.206
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	64.067	24.000	23.433	8.778	16.567	6.206

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	37.900	12.633	29.033	9.678
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	37.900	12.633	29.033	9.678

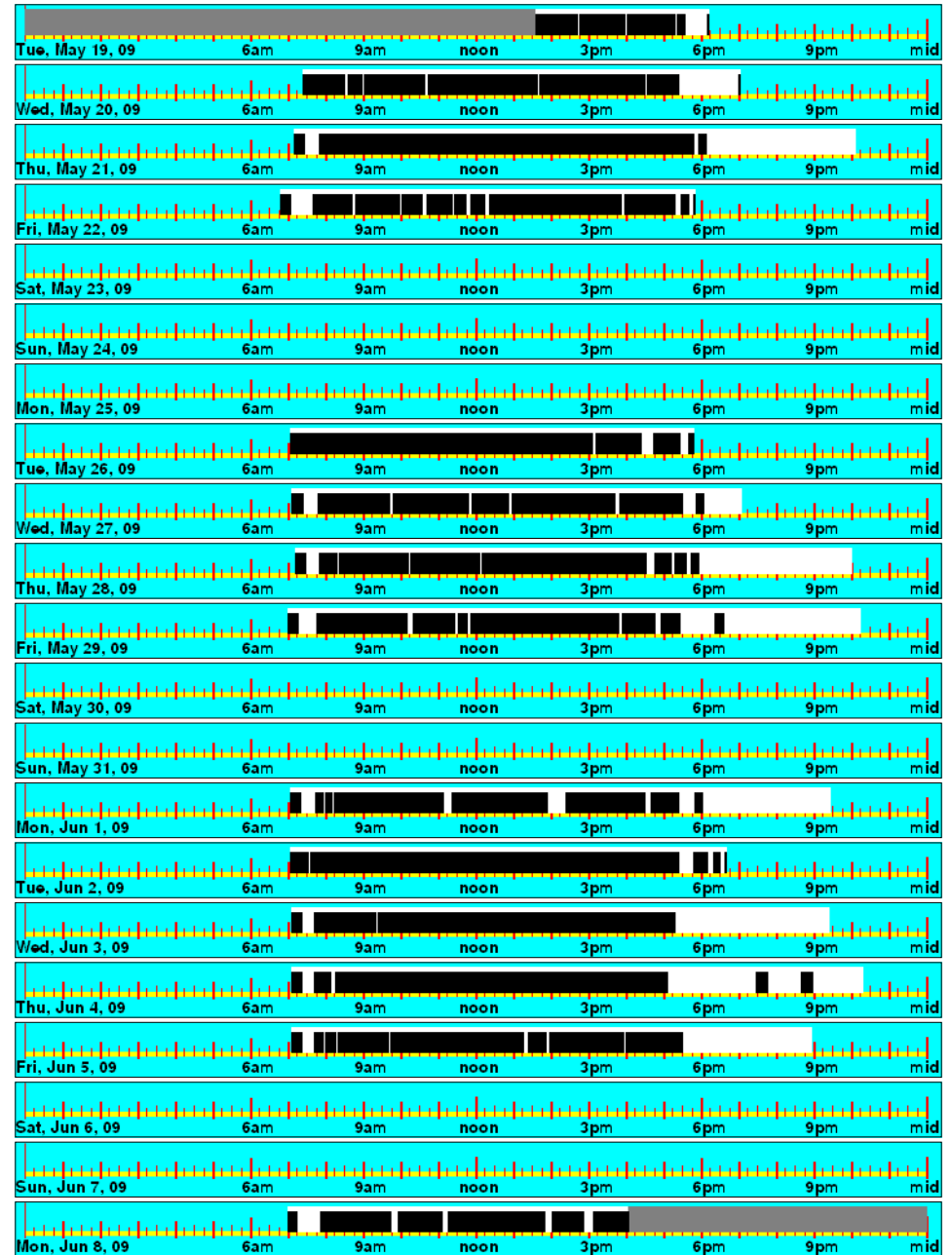
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	40.100	13.367	28.167	9.389
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	40.100	13.367	28.167	9.389

	Logged Totals			Normalized Totals		
Peak	173.300	128.400	482.483	60.343	44.709	25.9%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	173.300	128.400	482.483	60.343	44.709	25.9%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	8.778	6.206	11.065	10.079	12.633	9.678	14.978	10.033	13.367	9.389	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	8.778	6.206	11.065	10.079	12.633	9.678	14.978	10.033	13.367	9.389	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	173.300	128.400	482.483	^ ^ ^ ^	60.343	44.709	25.9%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	173.300	128.400	482.483		60.343	44.709	25.9%



hall to rm. #114

Area type: Hallway. Logger: 24313. Time delay 10 minutes. Noresco, Newton education center

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	58.583	24.000	36.033	14.762	24.900	10.201
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	58.583	24.000	36.033	14.762	24.900	10.201

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	45.000	15.000	29.600	9.867
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	45.000	15.000	29.600	9.867

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	63.900	24.000	23.417	8.795	18.283	6.867
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	63.900	24.000	23.417	8.795	18.283	6.867

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	40.167	13.389	30.233	10.078
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	40.167	13.389	30.233	10.078

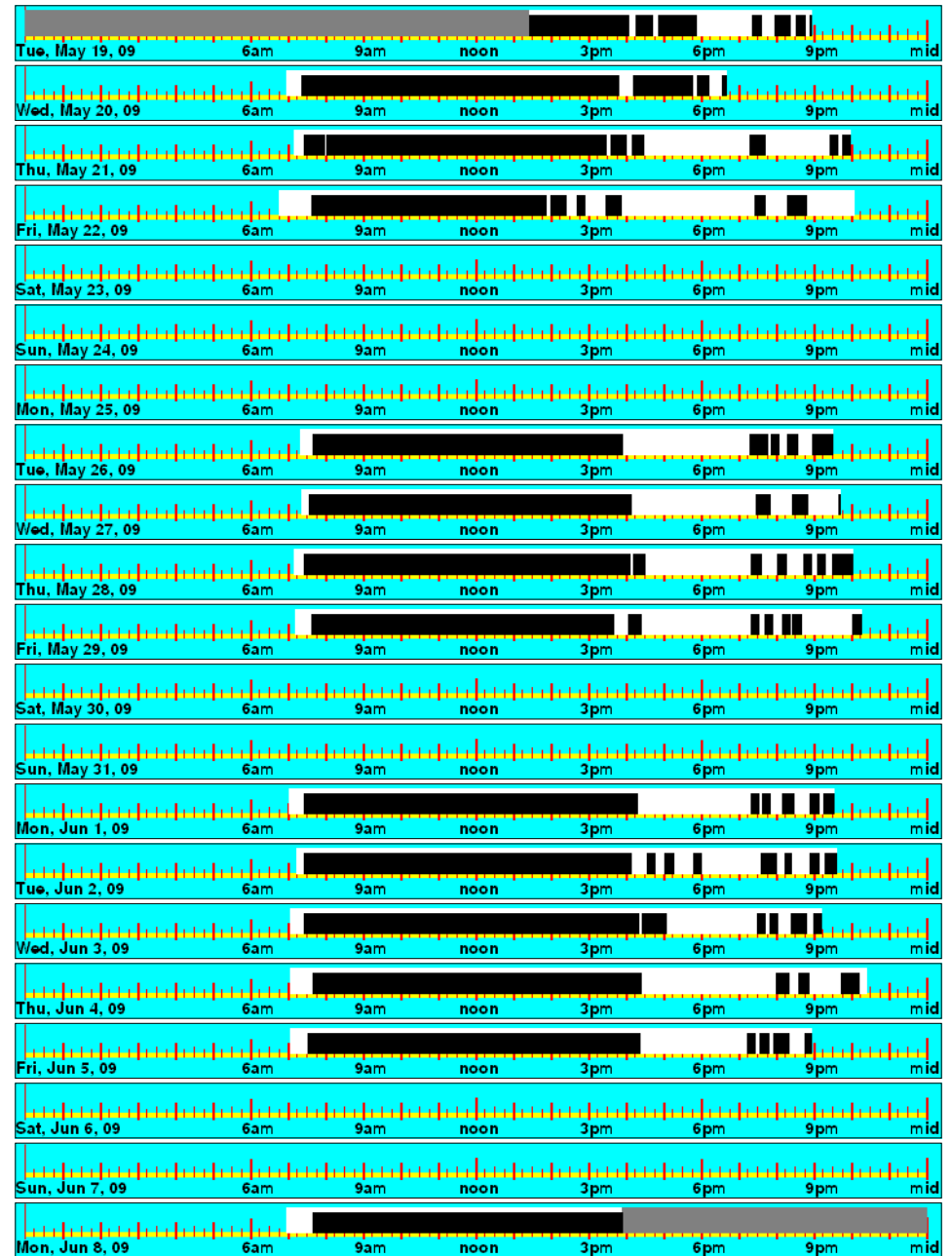
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	44.233	14.744	27.167	9.056
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	44.233	14.744	27.167	9.056

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	188.850	130.183	482.483	65.757	45.330	31.1%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	188.850	130.183	482.483	65.757	45.330	31.1%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	8.795	6.867	14.762	10.201	13.389	10.078	15.000	9.867	14.744	9.056	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	8.795	6.867	14.762	10.201	13.389	10.078	15.000	9.867	14.744	9.056	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	188.850	130.183	482.483	^ ^ ^ ^	65.757	45.330	31.1%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	188.850	130.183	482.483		65.757	45.330	31.1%



mens rm.

Area type: Restroom. Logger: 24953. Time delay 10 minutes. Noresco, Newton education center

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	59.150	24.000	28.583	11.598	17.167	6.965
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	59.150	24.000	28.583	11.598	17.167	6.965

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	25.433	8.478	14.700	4.900
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	25.433	8.478	14.700	4.900

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	63.433	24.000	15.333	5.801	8.567	3.241
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	63.433	24.000	15.333	5.801	8.567	3.241

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	38.783	12.928	18.367	6.122
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	38.783	12.928	18.367	6.122

Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	29.933	9.978	20.333	6.778
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	29.933	9.978	20.333	6.778

	Logged Totals			Normalized Totals		
Peak	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	138.067	79.133	482.583	48.065	27.548	42.7%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	138.067	79.133	482.583	48.065	27.548	42.7%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	5.801	3.241	11.598	6.965	12.928	6.122	8.478	4.900	9.978	6.778	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	5.801	3.241	11.598	6.965	12.928	6.122	8.478	4.900	9.978	6.778	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	138.067	79.133	482.583	^ ^ ^ ^	48.065	27.548	42.7%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	138.067	79.133	482.583		48.065	27.548	42.7%



mens rm.

Area type: Restroom. Logger: 22150. Time delay 10 minutes. Noresco, Newton education center

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	59.467	24.000	11.667	4.709	4.867	1.964
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	59.467	24.000	11.667	4.709	4.867	1.964

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	5.000	1.667	2.600	0.867
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	5.000	1.667	2.600	0.867

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	63.133	24.000	10.167	3.865	5.533	2.103
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	63.133	24.000	10.167	3.865	5.533	2.103

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	16.067	5.356	4.900	1.633
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	16.067	5.356	4.900	1.633

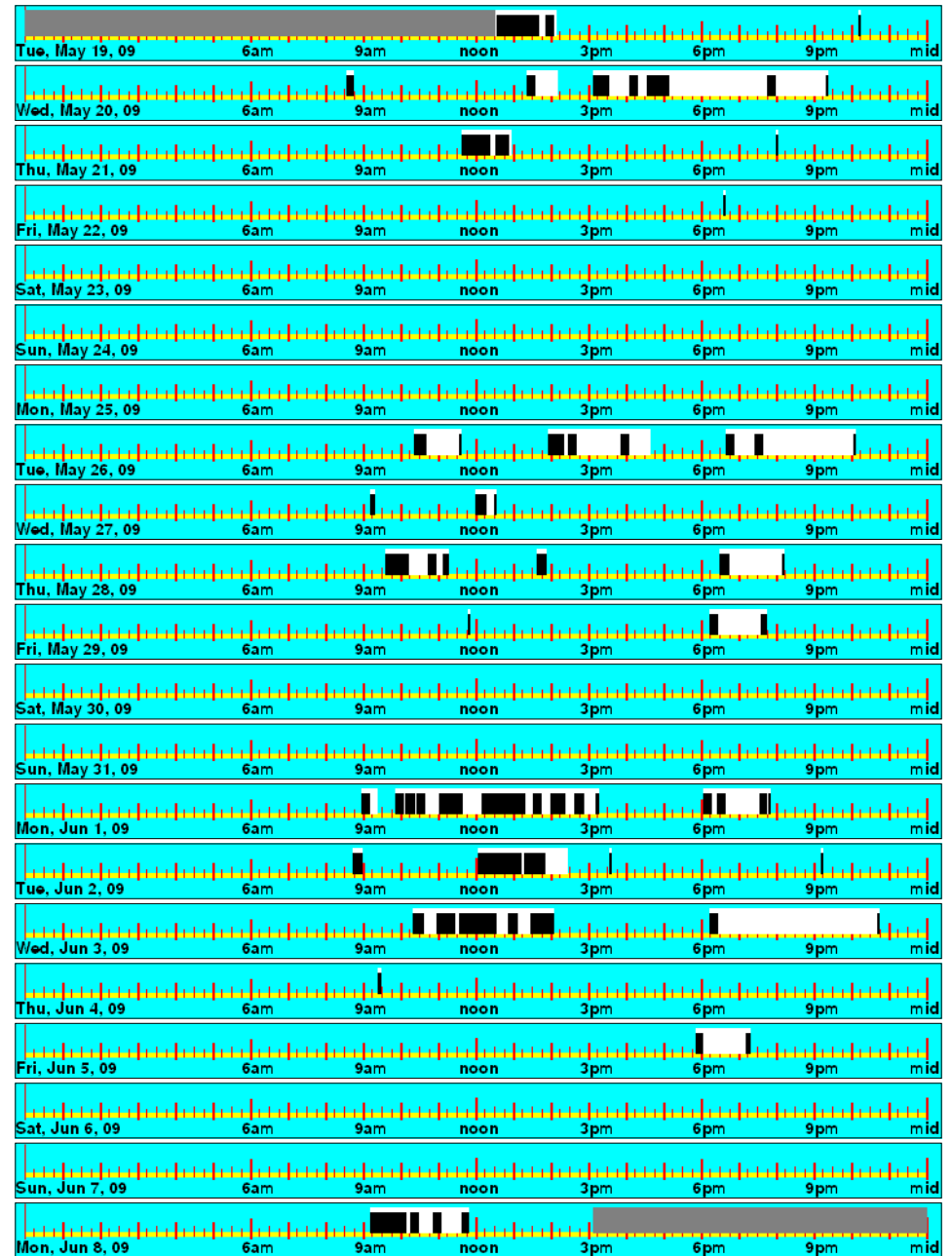
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	3.000	1.000	0.667	0.222
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	3.000	1.000	0.667	0.222

	Logged Totals			Normalized Totals		
Peak	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	45.900	18.567	482.600	15.978	6.463	59.5%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	45.900	18.567	482.600	15.978	6.463	59.5%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	3.865	2.103	4.709	1.964	5.356	1.633	1.667	0.867	1.000	0.222	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	3.865	2.103	4.709	1.964	5.356	1.633	1.667	0.867	1.000	0.222	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	45.900	18.567	482.600	^ ^ ^ ^	15.978	6.463	59.5%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	45.900	18.567	482.600		15.978	6.463	59.5%



rm. 107

Area type: Classroom. Logger: 24401. Time delay 10 minutes. Noresco, Newton education center

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	58.517	24.000	26.400	10.828	21.500	8.818
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	58.517	24.000	26.400	10.828	21.500	8.818

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	34.133	11.378	27.100	9.033
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	34.133	11.378	27.100	9.033

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	63.967	24.000	18.633	6.991	16.967	6.366
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	63.967	24.000	18.633	6.991	16.967	6.366

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	33.133	11.044	28.900	9.633
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	33.133	11.044	28.900	9.633

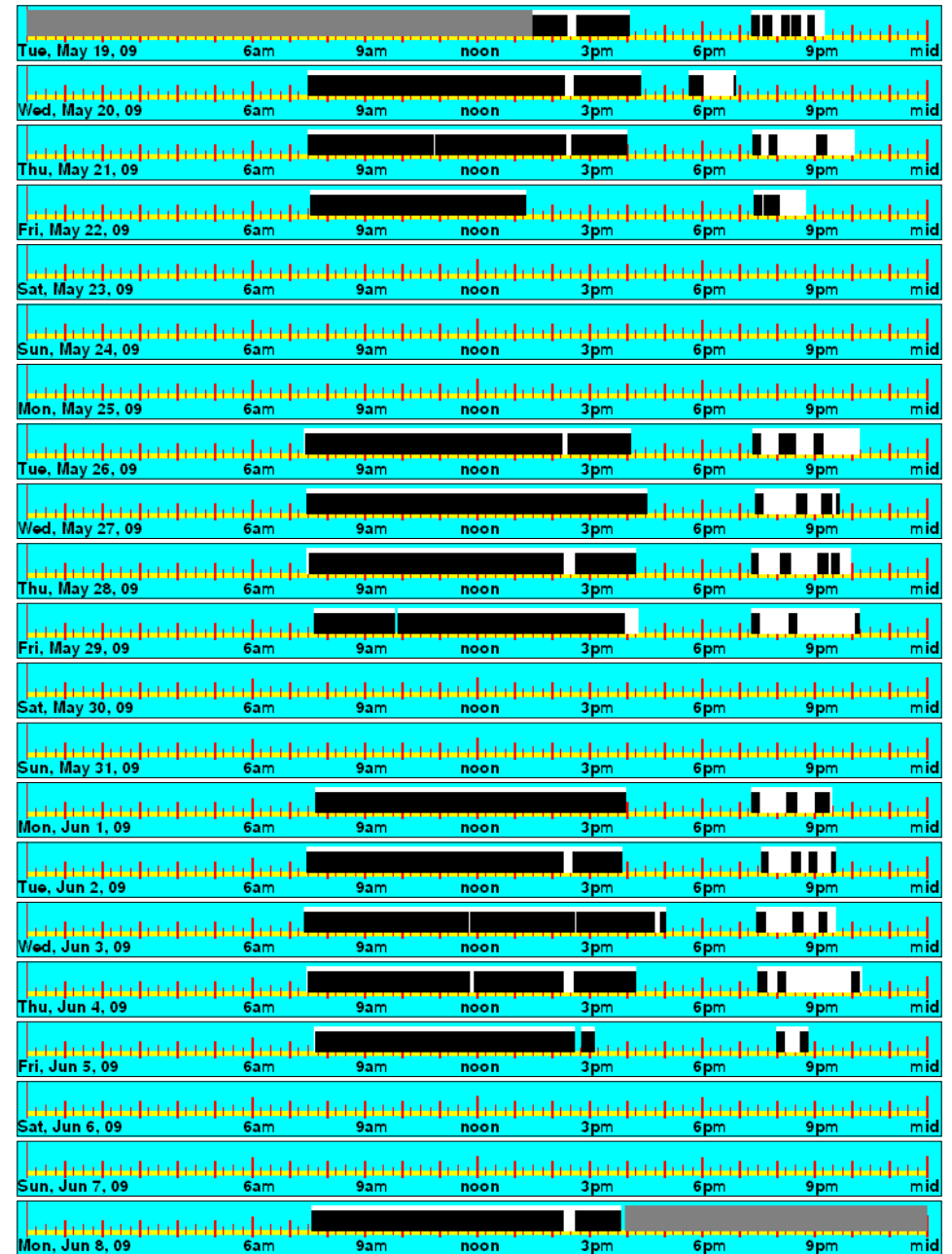
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	26.567	8.856	22.533	7.511
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	26.567	8.856	22.533	7.511

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	138.867	117.000	482.483	48.353	40.739	15.7%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	138.867	117.000	482.483	48.353	40.739	15.7%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	6.991	6.366	10.828	8.818	11.044	9.633	11.378	9.033	8.856	7.511	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	6.991	6.366	10.828	8.818	11.044	9.633	11.378	9.033	8.856	7.511	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	138.867	117.000	482.483	^ ^ ^ ^	48.353	40.739	15.7%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	138.867	117.000	482.483		48.353	40.739	15.7%



rm. 202

Area type: Private Office. Logger: 21623. Time delay 10 minutes. Noresco, Newton education center

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	59.267	24.000	21.433	8.679	18.733	7.586
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	59.267	24.000	21.433	8.679	18.733	7.586

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	24.417	8.139	21.250	7.083
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	24.417	8.139	21.250	7.083

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	63.350	24.000	14.183	5.373	12.950	4.906
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	63.350	24.000	14.183	5.373	12.950	4.906

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	27.200	9.067	24.533	8.178
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	27.200	9.067	24.533	8.178

Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	14.000	4.667	13.200	4.400
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	14.000	4.667	13.200	4.400

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	101.233	90.667	482.617	35.240	31.561	10.4%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	101.233	90.667	482.617	35.240	31.561	10.4%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	5.373	4.906	8.679	7.586	9.067	8.178	8.139	7.083	4.667	4.400	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	5.373	4.906	8.679	7.586	9.067	8.178	8.139	7.083	4.667	4.400	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	101.233	90.667	482.617	^ ^ ^ ^	35.240	31.561	10.4%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	101.233	90.667	482.617		35.240	31.561	10.4%



Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	59.417	24.000	26.033	10.516	22.500	9.088
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	59.417	24.000	26.033	10.516	22.500	9.088

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	31.667	10.556	28.633	9.544
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	31.667	10.556	28.633	9.544

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	63.267	24.000	17.550	6.658	15.217	5.772
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	63.267	24.000	17.550	6.658	15.217	5.772

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	31.800	10.600	28.633	9.544
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	31.800	10.600	28.633	9.544

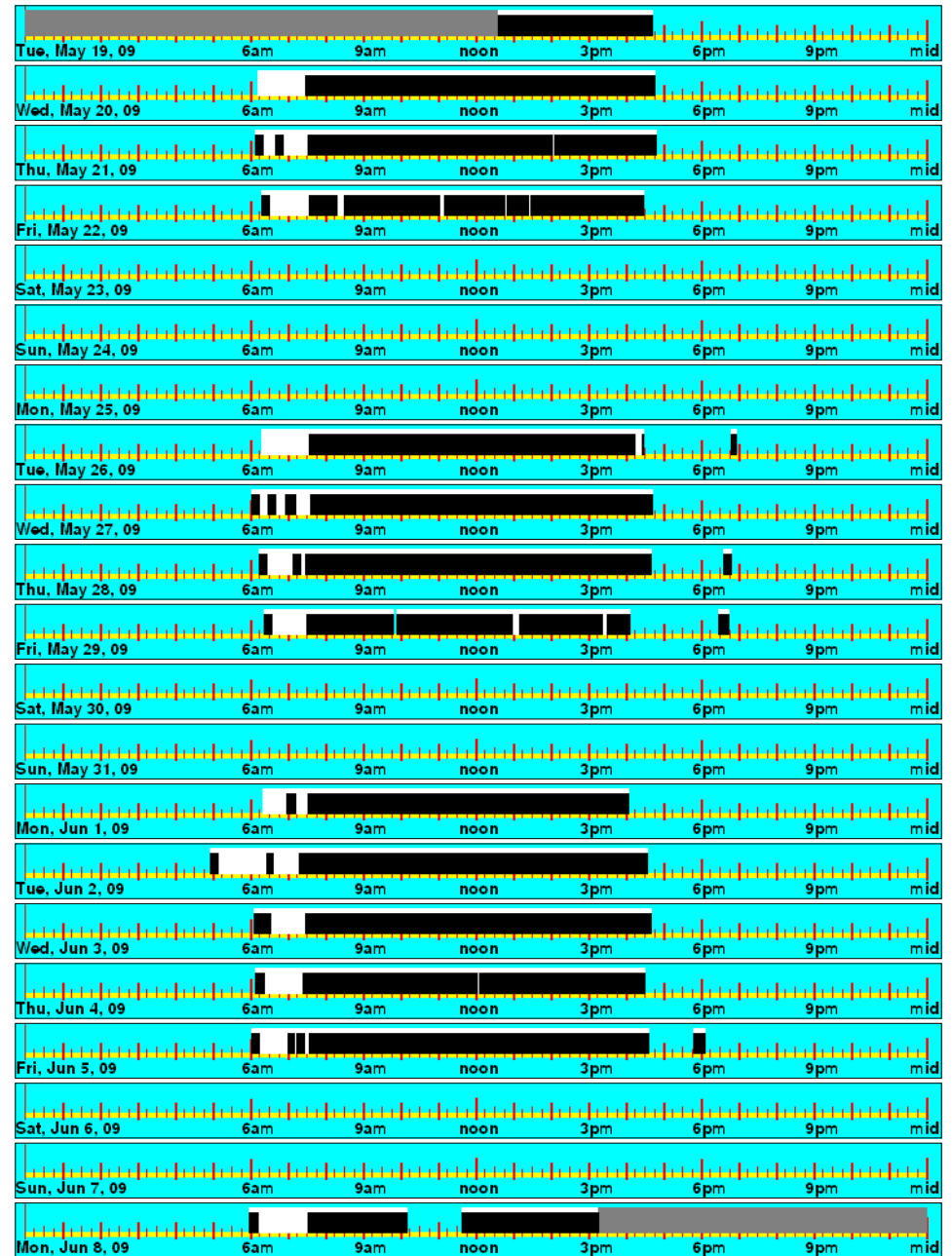
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	30.933	10.311	27.067	9.022
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	30.933	10.311	27.067	9.022

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	137.983	122.050	482.683	48.026	42.480	11.5%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	137.983	122.050	482.683	48.026	42.480	11.5%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	6.658	5.772	10.516	9.088	10.600	9.544	10.556	9.544	10.311	9.022	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	6.658	5.772	10.516	9.088	10.600	9.544	10.556	9.544	10.311	9.022	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	137.983	122.050	482.683	^ ^ ^ ^	48.026	42.480	11.5%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	137.983	122.050	482.683		48.026	42.480	11.5%



Area type: Open Space. Logger: 24960. Time delay 10 minutes. Noresco, Newton education center

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	58.400	24.000	26.000	10.685	21.700	8.918
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	58.400	24.000	26.000	10.685	21.700	8.918

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	30.800	10.267	26.900	8.967
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	30.800	10.267	26.900	8.967

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	64.050	24.000	19.800	7.419	15.900	5.958
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	64.050	24.000	19.800	7.419	15.900	5.958

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	30.400	10.133	26.767	8.922
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	30.400	10.133	26.767	8.922

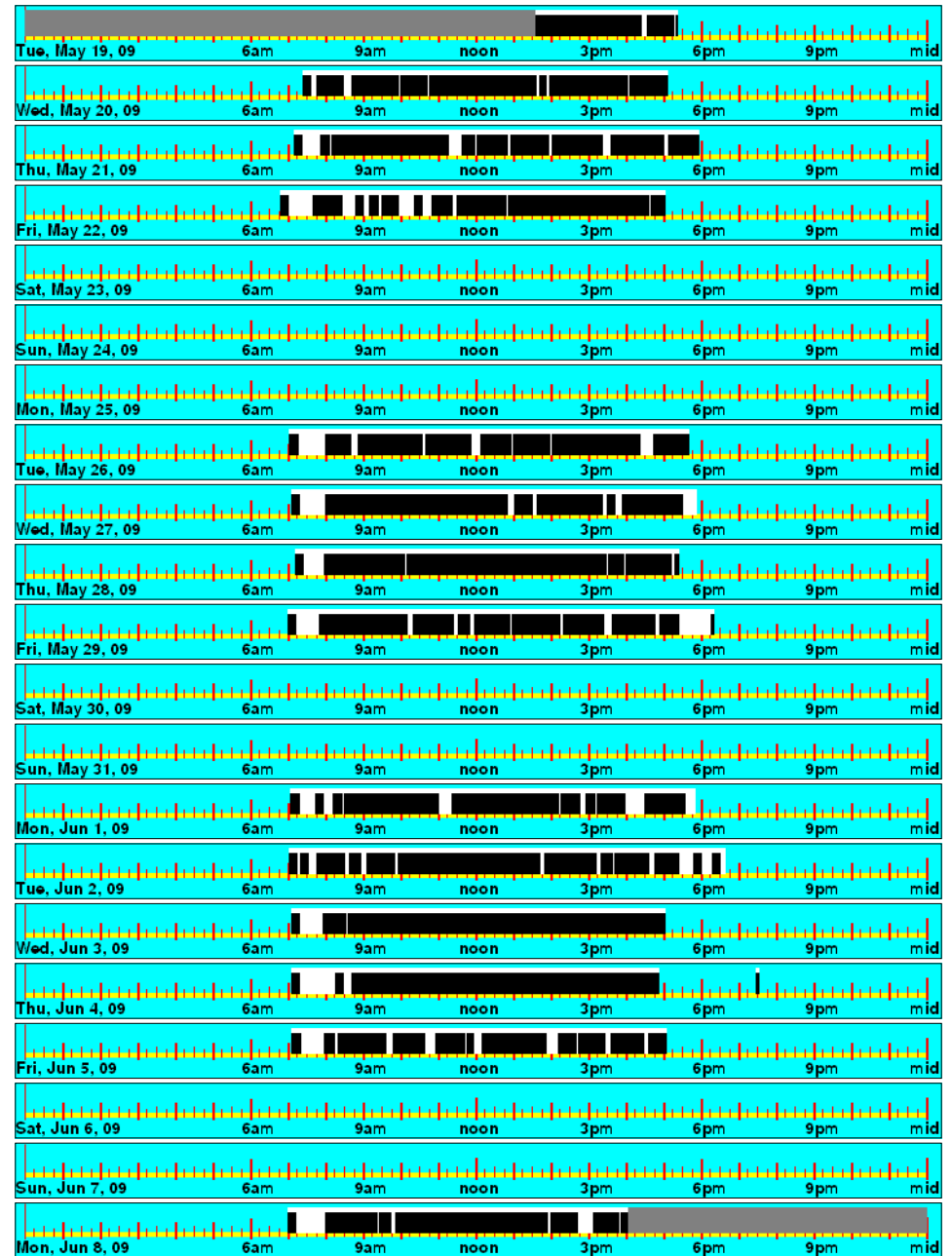
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	31.533	10.511	24.333	8.111
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	31.533	10.511	24.333	8.111

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	138.533	115.600	482.450	48.240	40.255	16.6%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	138.533	115.600	482.450	48.240	40.255	16.6%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	7.419	5.958	10.685	8.918	10.133	8.922	10.267	8.967	10.511	8.111	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	7.419	5.958	10.685	8.918	10.133	8.922	10.267	8.967	10.511	8.111	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	138.533	115.600	482.450	^ ^ ^ ^	48.240	40.255	16.6%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	138.533	115.600	482.450		48.240	40.255	16.6%



rm.112gym

Area type: Gym. Logger: 21286. Time delay 10 minutes. Noresco, Newton education center

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	58.667	24.000	24.333	9.955	11.800	4.827
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	58.667	24.000	24.333	9.955	11.800	4.827

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	37.733	12.578	21.000	7.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	37.733	12.578	21.000	7.000

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	63.850	24.000	21.133	7.944	13.733	5.162
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	63.850	24.000	21.133	7.944	13.733	5.162

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	33.933	11.311	17.867	5.956
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	33.933	11.311	17.867	5.956

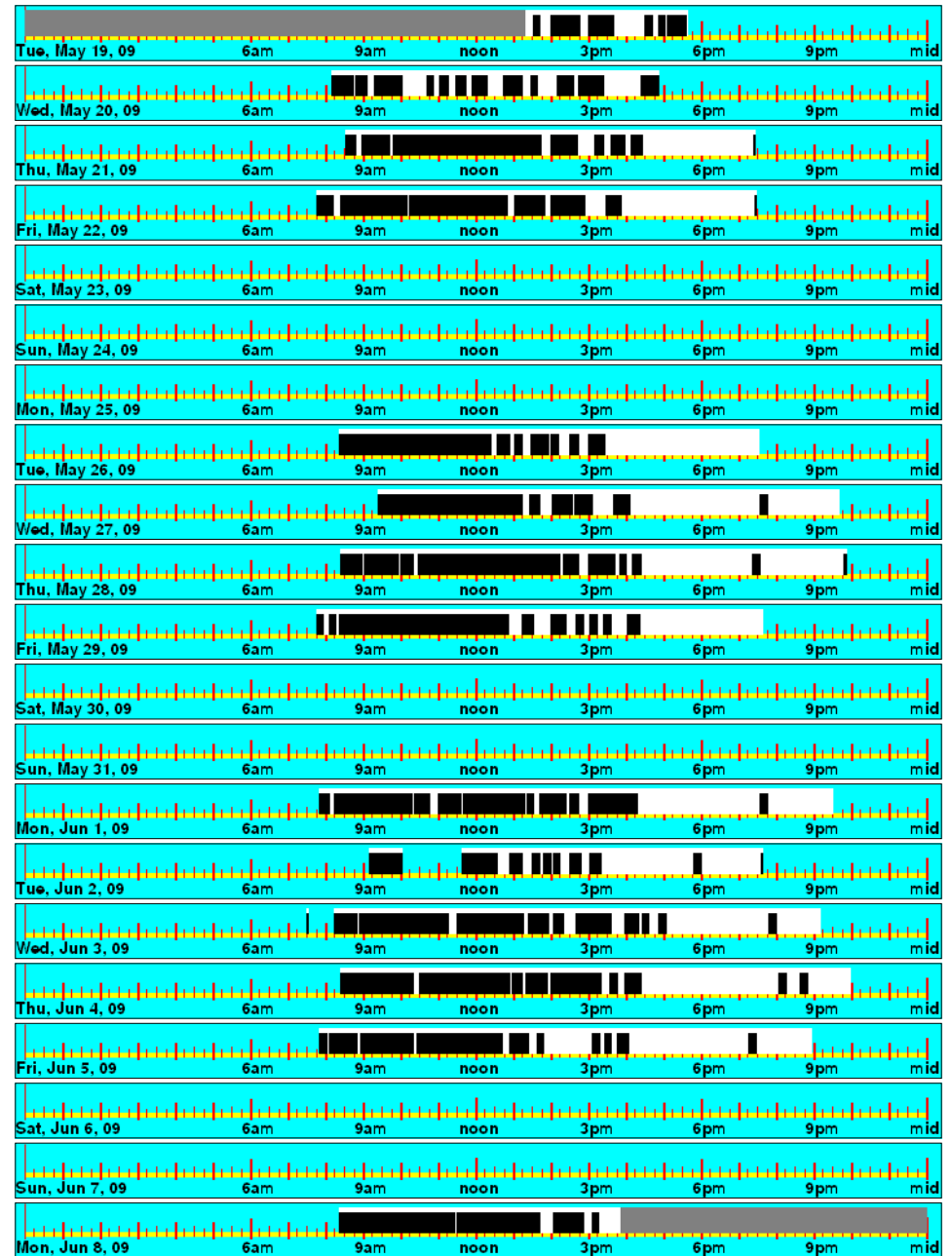
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	36.633	12.211	19.400	6.467
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	36.633	12.211	19.400	6.467

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	153.767	83.800	482.517	53.538	29.177	45.5%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	153.767	83.800	482.517	53.538	29.177	45.5%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	7.944	5.162	9.955	4.827	11.311	5.956	12.578	7.000	12.211	6.467	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	7.944	5.162	9.955	4.827	11.311	5.956	12.578	7.000	12.211	6.467	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	153.767	83.800	482.517	^ ^ ^ ^	53.538	29.177	45.5%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	153.767	83.800	482.517		53.538	29.177	45.5%



rm.113

Area type: Classroom. Logger: 23631. Time delay 10 minutes. Noresco, Newton education center

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	58.650	24.000	33.600	13.749	18.433	7.543
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	58.650	24.000	33.600	13.749	18.433	7.543

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	40.667	13.556	24.200	8.067
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	40.667	13.556	24.200	8.067

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	63.850	24.000	21.217	7.975	13.333	5.012
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	63.850	24.000	21.217	7.975	13.333	5.012

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	34.400	11.467	22.933	7.644
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	34.400	11.467	22.933	7.644

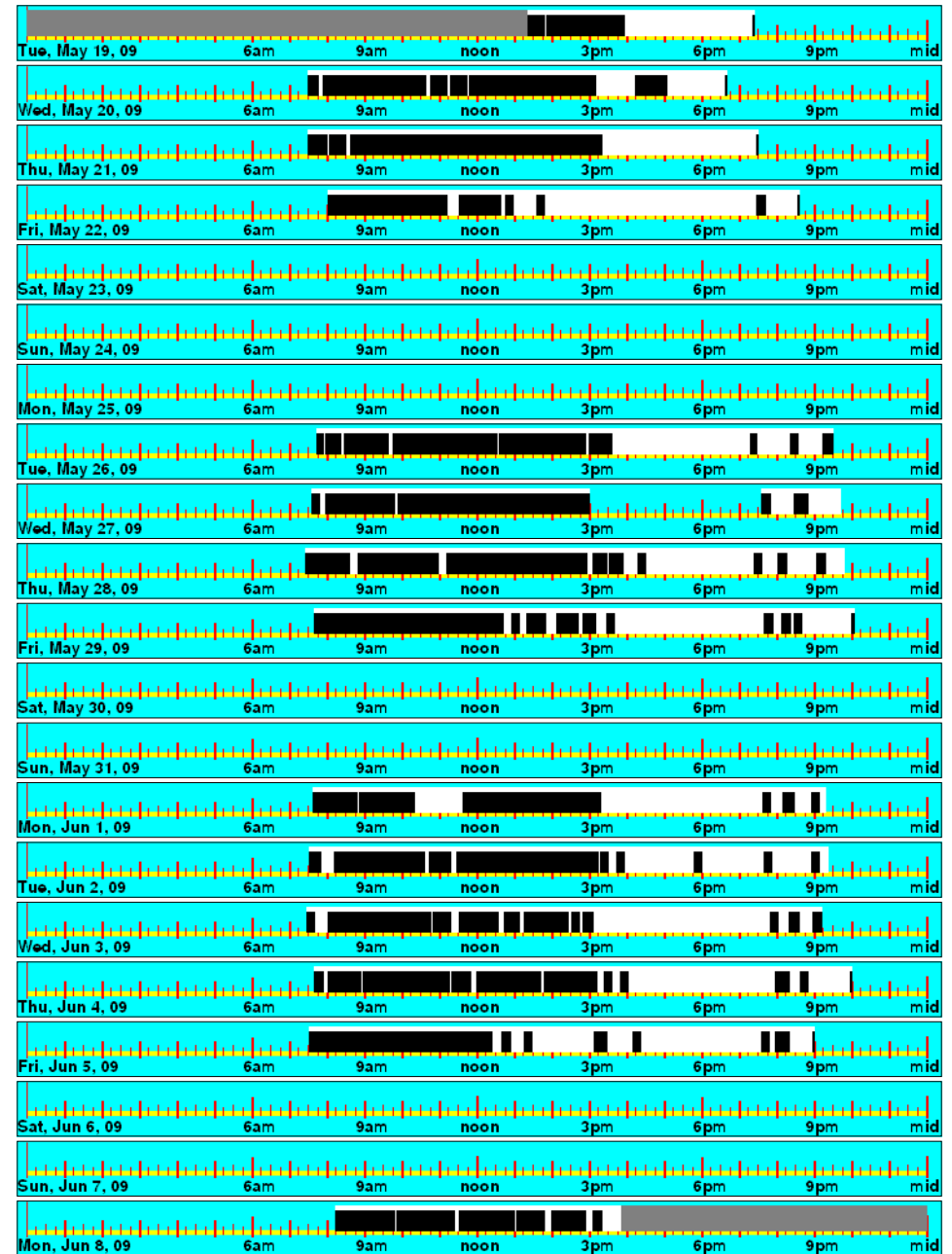
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	40.367	13.456	18.833	6.278
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	40.367	13.456	18.833	6.278

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	170.250	97.733	482.500	59.279	34.029	42.6%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	170.250	97.733	482.500	59.279	34.029	42.6%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	7.975	5.012	13.749	7.543	11.467	7.644	13.556	8.067	13.456	6.278	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	7.975	5.012	13.749	7.543	11.467	7.644	13.556	8.067	13.456	6.278	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	170.250	97.733	482.500	^ ^ ^ ^	59.279	34.029	42.6%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	170.250	97.733	482.500		59.279	34.029	42.6%



rm.114

Area type: Classroom. Logger: 23959. Time delay 10 minutes. Noresco, Newton education center

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	58.633	24.000	18.900	7.736	8.767	3.588
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	58.633	24.000	18.900	7.736	8.767	3.588

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	18.700	6.233	12.867	4.289
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	18.700	6.233	12.867	4.289

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	63.883	24.000	14.217	5.341	4.767	1.791
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	63.883	24.000	14.217	5.341	4.767	1.791

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	29.833	9.944	8.367	2.789
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	29.833	9.944	8.367	2.789

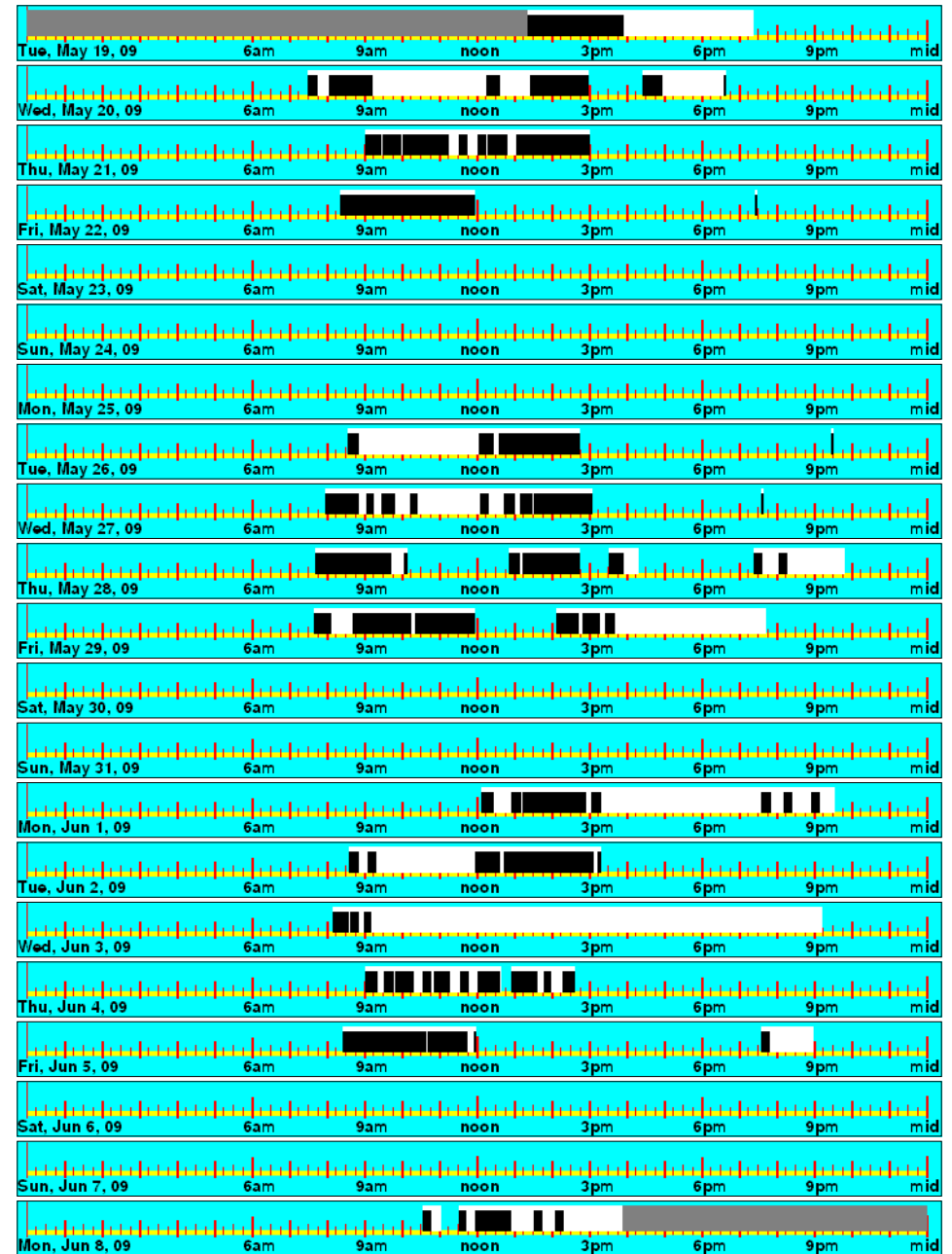
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	18.333	6.111	11.800	3.933
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	18.333	6.111	11.800	3.933

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	99.983	46.567	482.517	34.812	16.213	53.4%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	99.983	46.567	482.517	34.812	16.213	53.4%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	5.341	1.791	7.736	3.588	9.944	2.789	6.233	4.289	6.111	3.933	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	5.341	1.791	7.736	3.588	9.944	2.789	6.233	4.289	6.111	3.933	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	99.983	46.567	482.517	^ ^ ^ ^	34.812	16.213	53.4%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	99.983	46.567	482.517		34.812	16.213	53.4%



rm.117

Area type: Private Office. Logger: 24567. Time delay 10 minutes. Noresco, Newton education center

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	58.717	24.000	20.967	8.570	15.867	6.485
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	58.717	24.000	20.967	8.570	15.867	6.485

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	39.333	13.111	27.367	9.122
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	39.333	13.111	27.367	9.122

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	63.817	24.000	20.817	7.829	15.150	5.698
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	63.817	24.000	20.817	7.829	15.150	5.698

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	27.367	9.122	24.100	8.033
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	27.367	9.122	24.100	8.033

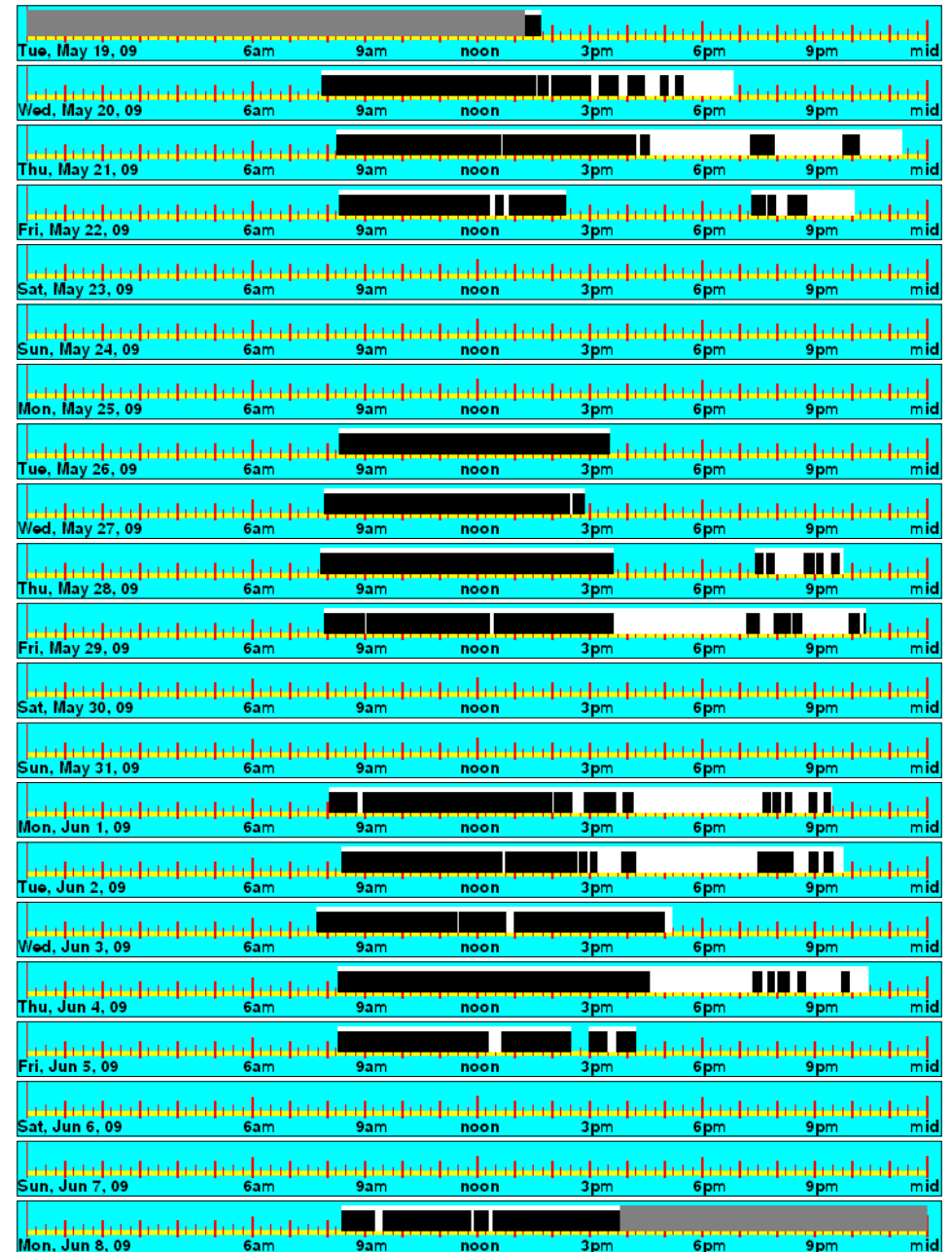
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	30.633	10.211	22.233	7.411
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	30.633	10.211	22.233	7.411

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	139.117	104.717	482.533	48.435	36.458	24.7%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	139.117	104.717	482.533	48.435	36.458	24.7%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	7.829	5.698	8.570	6.485	9.122	8.033	13.111	9.122	10.211	7.411	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	7.829	5.698	8.570	6.485	9.122	8.033	13.111	9.122	10.211	7.411	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	139.117	104.717	482.533	^ ^ ^ ^	48.435	36.458	24.7%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	139.117	104.717	482.533		48.435	36.458	24.7%



rm.117

Area type: Private Office. Logger: 23970. Time delay 10 minutes. Noresco, Newton education center

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	58.733	24.000	37.767	15.432	22.900	9.358
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	58.733	24.000	37.767	15.432	22.900	9.358

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	29.233	9.744	27.467	9.156
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	29.233	9.744	27.467	9.156

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	63.817	24.000	22.283	8.380	17.250	6.487
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	63.817	24.000	22.283	8.380	17.250	6.487

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	34.400	11.467	28.933	9.644
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	34.400	11.467	28.933	9.644

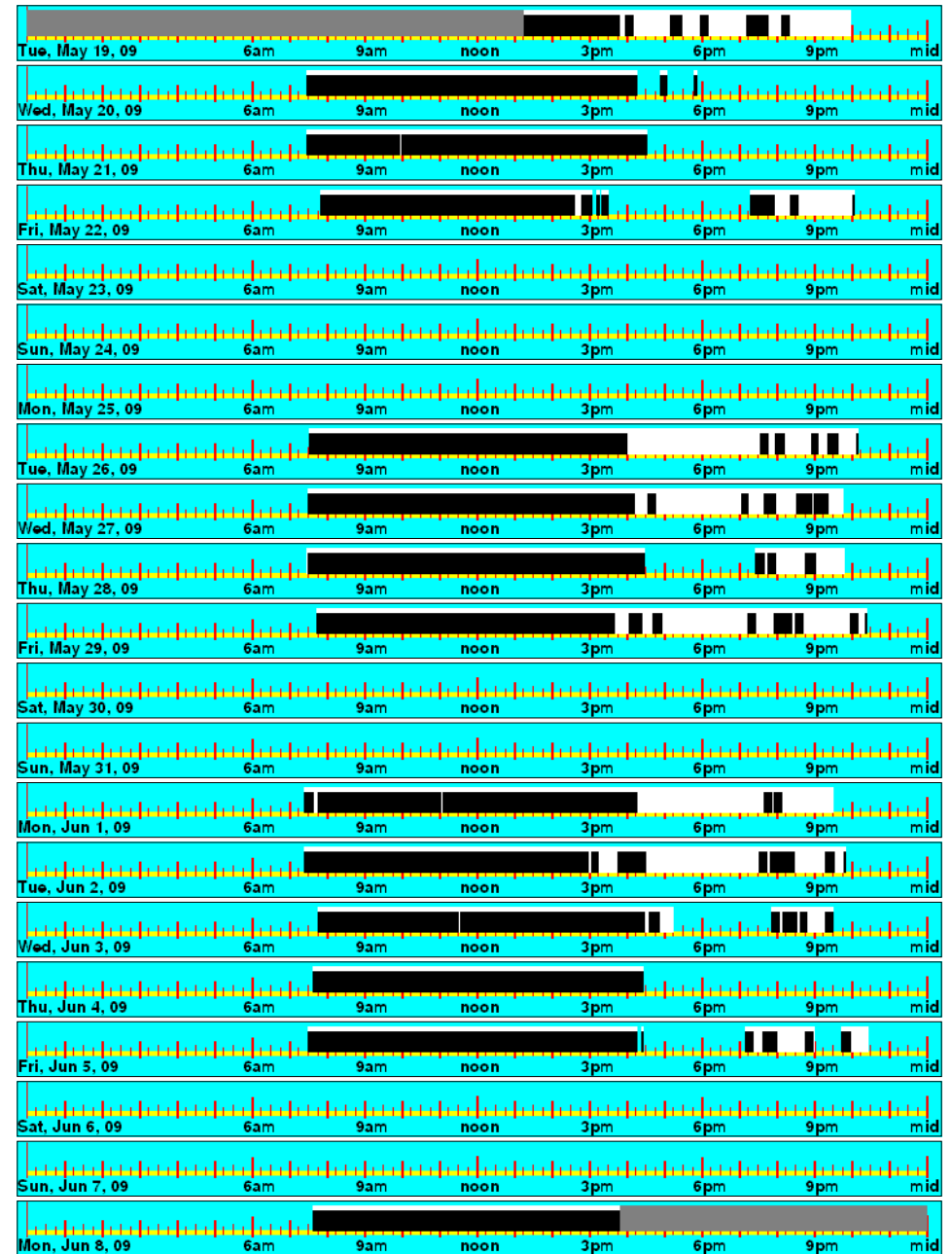
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	36.233	12.078	27.433	9.144
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	36.233	12.078	27.433	9.144

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	159.917	123.983	482.550	55.675	43.165	22.5%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	159.917	123.983	482.550	55.675	43.165	22.5%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	8.380	6.487	15.432	9.358	11.467	9.644	9.744	9.156	12.078	9.144	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	8.380	6.487	15.432	9.358	11.467	9.644	9.744	9.156	12.078	9.144	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	159.917	123.983	482.550	^ ^ ^ ^	55.675	43.165	22.5%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	159.917	123.983	482.550		55.675	43.165	22.5%



rm.120

Area type: Classroom. Logger: 24298. Time delay 10 minutes. Noresco, Newton education center

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	58.767	24.000	30.567	12.483	18.200	7.433
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	58.767	24.000	30.567	12.483	18.200	7.433

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	25.533	8.511	22.267	7.422
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	25.533	8.511	22.267	7.422

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	63.783	24.000	12.883	4.848	10.800	4.064
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	63.783	24.000	12.883	4.848	10.800	4.064

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	24.500	8.167	19.467	6.489
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	24.500	8.167	19.467	6.489

Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	22.367	7.456	18.100	6.033
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	22.367	7.456	18.100	6.033

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	115.850	88.833	482.550	40.333	30.927	23.3%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	115.850	88.833	482.550	40.333	30.927	23.3%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	4.848	4.064	12.483	7.433	8.167	6.489	8.511	7.422	7.456	6.033	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	4.848	4.064	12.483	7.433	8.167	6.489	8.511	7.422	7.456	6.033	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	115.850	88.833	482.550	^ ^ ^ ^	40.333	30.927	23.3%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	115.850	88.833	482.550		40.333	30.927	23.3%



rm.122

Area type: Classroom. Logger: 22624. Time delay 10 minutes. Noresco, Newton education center

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	58.800	24.000	28.700	11.714	11.967	4.884
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	58.800	24.000	28.700	11.714	11.967	4.884

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	22.867	7.622	16.100	5.367
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	22.867	7.622	16.100	5.367

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	63.733	24.000	21.250	8.002	11.367	4.280
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	63.733	24.000	21.250	8.002	11.367	4.280

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	30.067	10.022	21.400	7.133
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	30.067	10.022	21.400	7.133

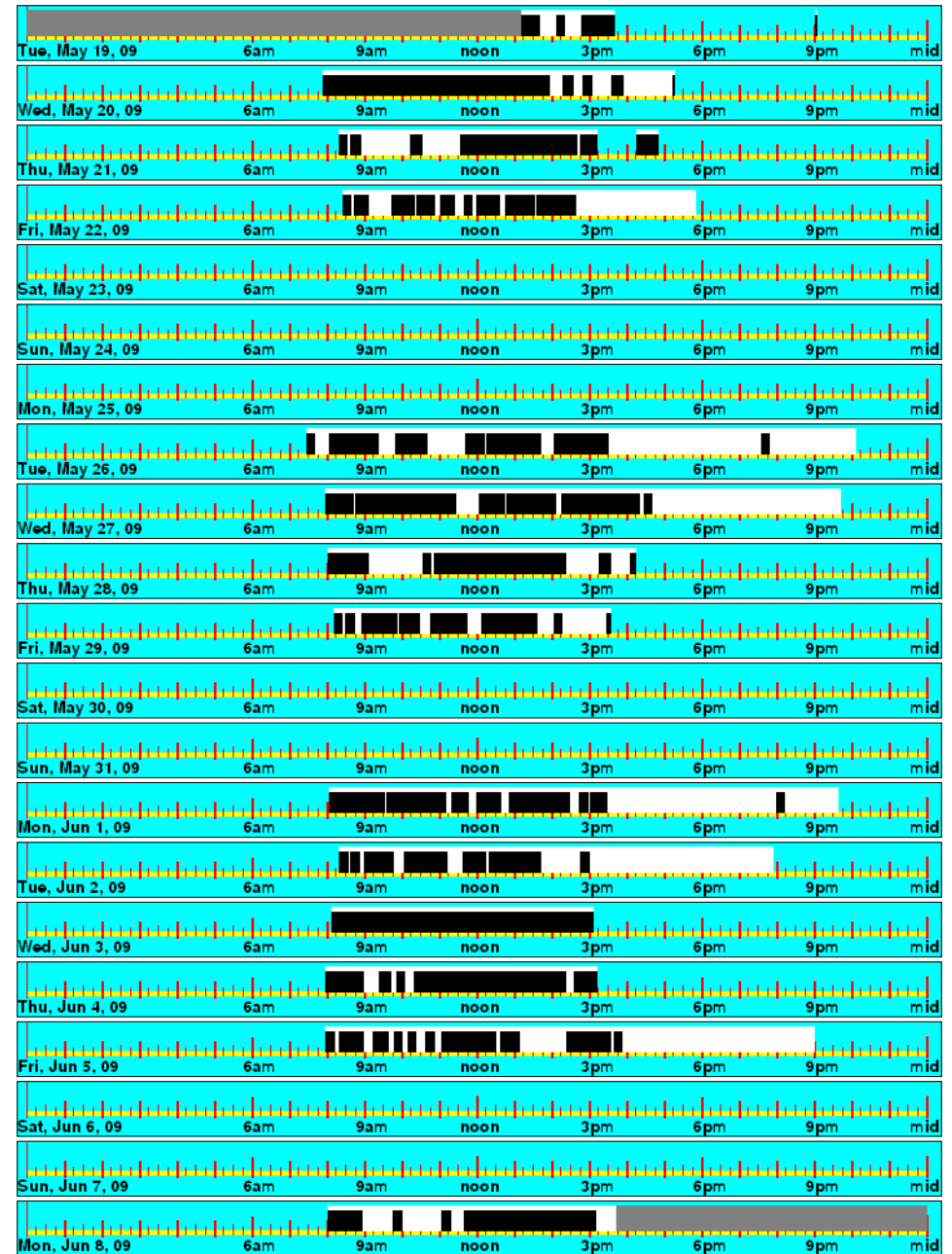
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	29.800	9.933	14.267	4.756
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	29.800	9.933	14.267	4.756

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	132.683	75.100	482.533	46.195	26.147	43.4%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	132.683	75.100	482.533	46.195	26.147	43.4%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	8.002	4.280	11.714	4.884	10.022	7.133	7.622	5.367	9.933	4.756	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	8.002	4.280	11.714	4.884	10.022	7.133	7.622	5.367	9.933	4.756	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	132.683	75.100	482.533	^ ^ ^ ^	46.195	26.147	43.4%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	132.683	75.100	482.533		46.195	26.147	43.4%



rm.127

Area type: Classroom. Logger: 24795. Time delay 10 minutes. Noresco, Newton education center

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	58.833	24.000	23.000	9.382	18.900	7.710
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	58.833	24.000	23.000	9.382	18.900	7.710

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	30.267	10.089	21.833	7.278
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	30.267	10.089	21.833	7.278

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	63.683	24.000	17.717	6.677	16.417	6.187
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	63.683	24.000	17.717	6.677	16.417	6.187

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	28.717	9.572	25.683	8.561
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	28.717	9.572	25.683	8.561

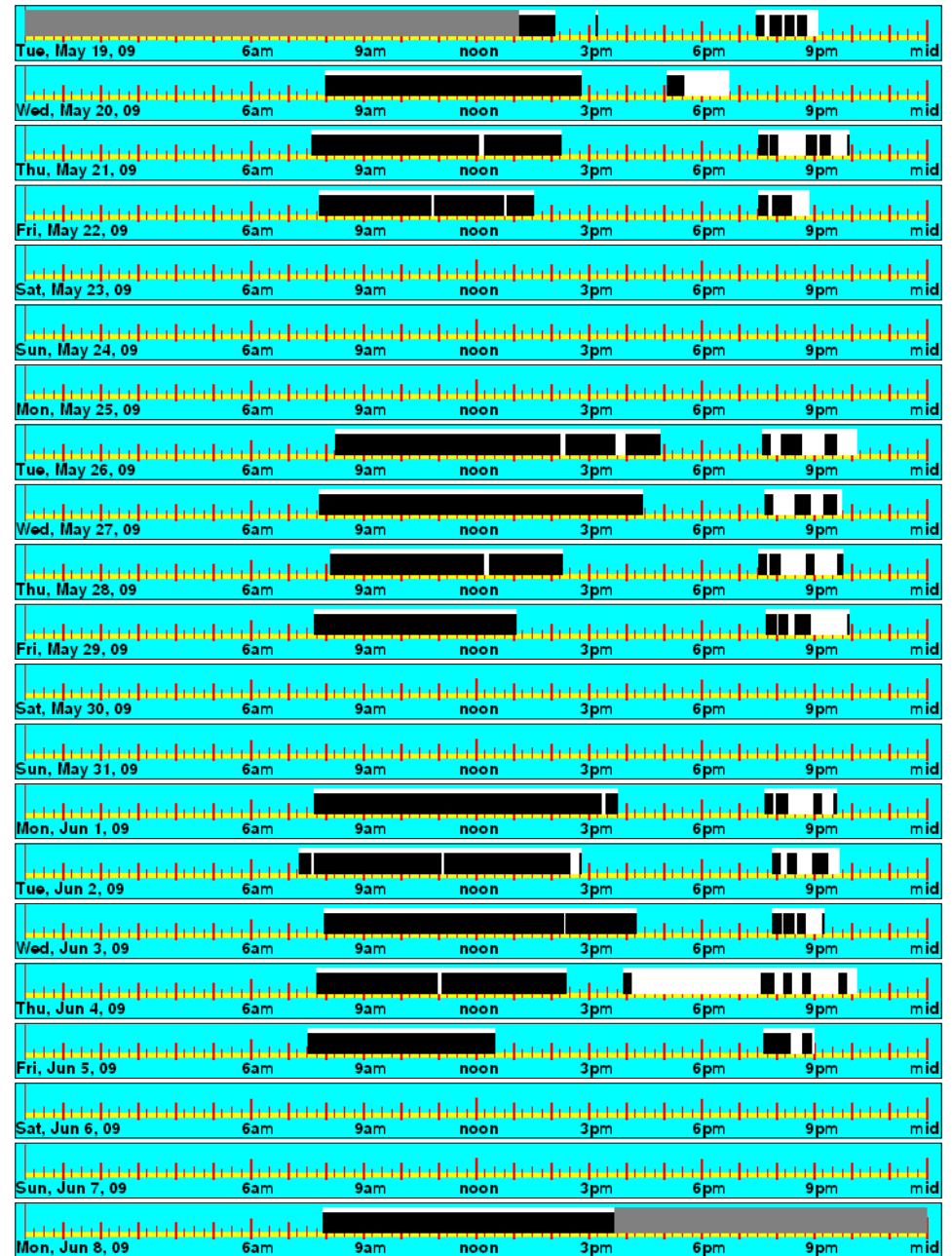
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	20.900	6.967	18.300	6.100
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	20.900	6.967	18.300	6.100

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	120.600	101.133	482.517	41.990	35.212	16.1%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	120.600	101.133	482.517	41.990	35.212	16.1%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	6.677	6.187	9.382	7.710	9.572	8.561	10.089	7.278	6.967	6.100	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	6.677	6.187	9.382	7.710	9.572	8.561	10.089	7.278	6.967	6.100	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	120.600	101.133	482.517	^ ^ ^ ^	41.990	35.212	16.1%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	120.600	101.133	482.517		41.990	35.212	16.1%



rm.200

Area type: Open Space. Logger: 23114. Time delay 10 minutes. Noresco, Newton education center

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	74.233	24.000	23.600	7.630	21.800	7.048
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	74.233	24.000	23.600	7.630	21.800	7.048

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	26.700	8.900	24.367	8.122
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	26.700	8.900	24.367	8.122

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	15.900	5.300	15.000	5.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	15.900	5.300	15.000	5.000

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	29.667	9.889	27.233	9.078
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	29.667	9.889	27.233	9.078

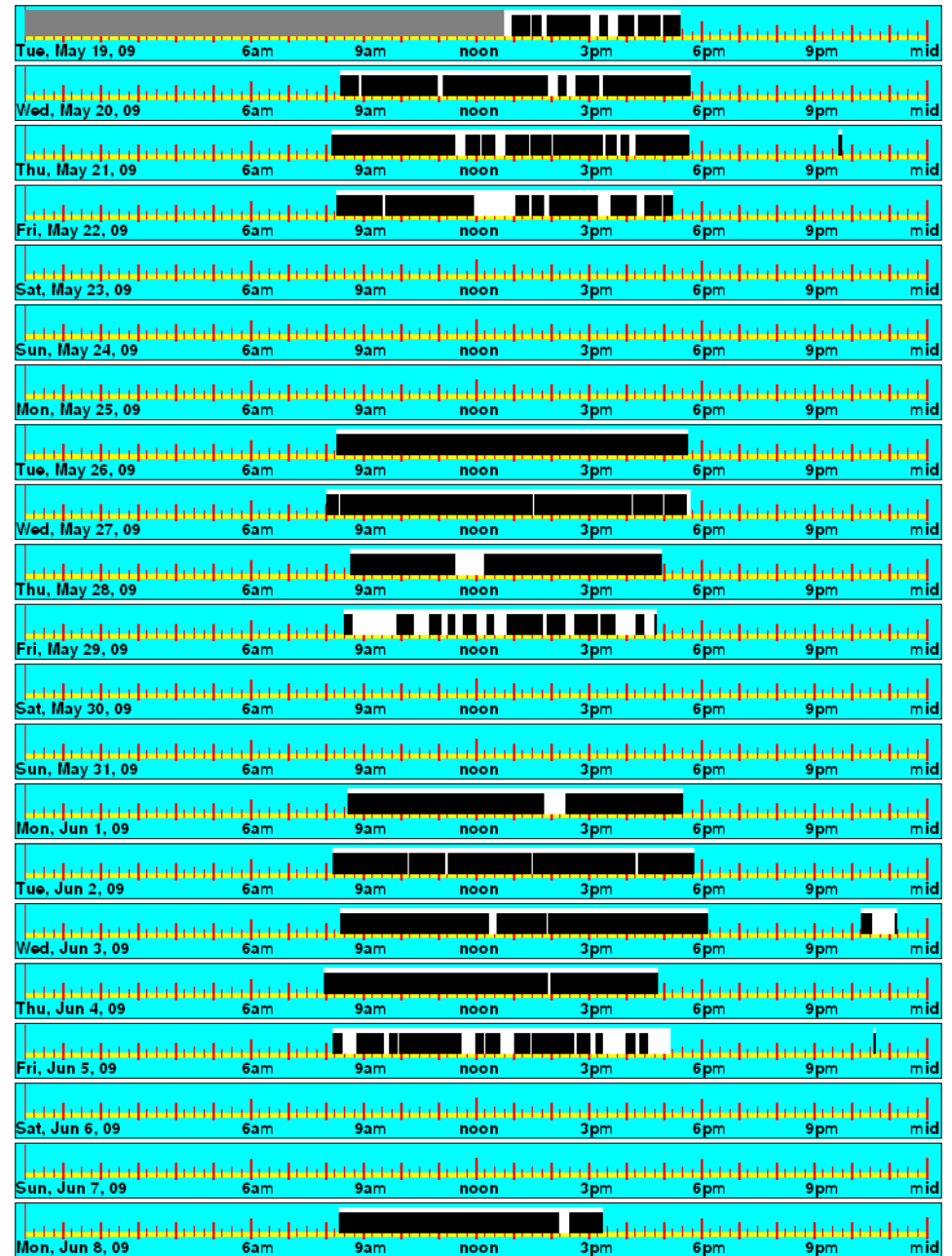
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	26.233	8.744	16.467	5.489
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	26.233	8.744	16.467	5.489

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	122.100	104.867	506.233	40.520	34.801	14.1%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	122.100	104.867	506.233	40.520	34.801	14.1%

Normalized Data

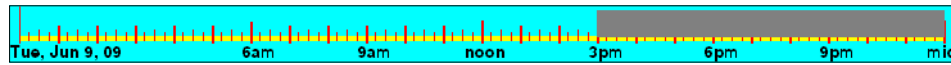
	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	5.300	5.000	7.630	7.048	9.889	9.078	8.900	8.122	8.744	5.489	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	5.300	5.000	7.630	7.048	9.889	9.078	8.900	8.122	8.744	5.489	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	122.100	104.867	506.233	^ ^ ^ ^	40.520	34.801	14.1%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	122.100	104.867	506.233		40.520	34.801	14.1%



rm.200

Area type: Open Space. Logger: 23114. Time delay 10 minutes. Noresco, Newton education center



rm.213

Area type: Open Space. Logger: 24630. Time delay 10 minutes. Noresco, Newton education center

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	59.050	24.000	39.333	15.986	27.300	11.096
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	59.050	24.000	39.333	15.986	27.300	11.096

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	47.867	15.956	32.900	10.967
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	47.867	15.956	32.900	10.967

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	63.517	24.000	24.150	9.125	19.550	7.387
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	63.517	24.000	24.150	9.125	19.550	7.387

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	47.100	15.700	34.467	11.489
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	47.100	15.700	34.467	11.489

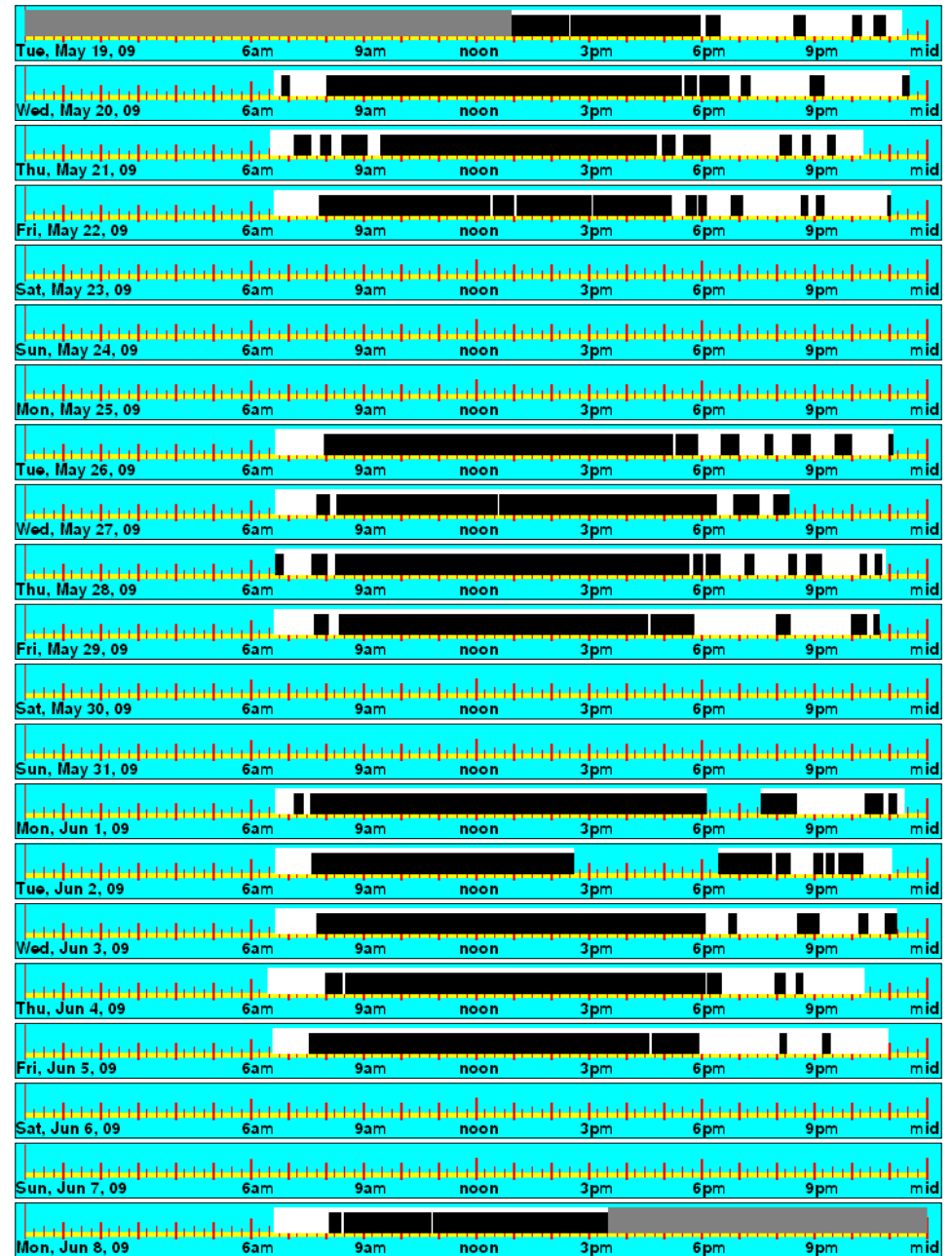
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	48.867	16.289	31.433	10.478
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	48.867	16.289	31.433	10.478

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	207.317	145.650	482.567	72.175	50.706	29.7%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	207.317	145.650	482.567	72.175	50.706	29.7%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	9.125	7.387	15.986	11.096	15.700	11.489	15.956	10.967	16.289	10.478	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	9.125	7.387	15.986	11.096	15.700	11.489	15.956	10.967	16.289	10.478	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	207.317	145.650	482.567	^ ^ ^ ^	72.175	50.706	29.7%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	207.317	145.650	482.567		72.175	50.706	29.7%



rm.215

Area type: Open Space. Logger: 22249. Time delay 10 minutes. Noresco, Newton education center

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	1.967	0.656	1.433	0.478
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	1.967	0.656	1.433	0.478

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	58.933	24.000	28.933	11.783	23.367	9.516
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	58.933	24.000	28.933	11.783	23.367	9.516

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	31.667	10.556	28.300	9.433
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	31.667	10.556	28.300	9.433

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	63.650	24.000	18.417	6.944	17.367	6.548
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	63.650	24.000	18.417	6.944	17.367	6.548

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	33.033	11.011	29.500	9.833
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	33.033	11.011	29.500	9.833

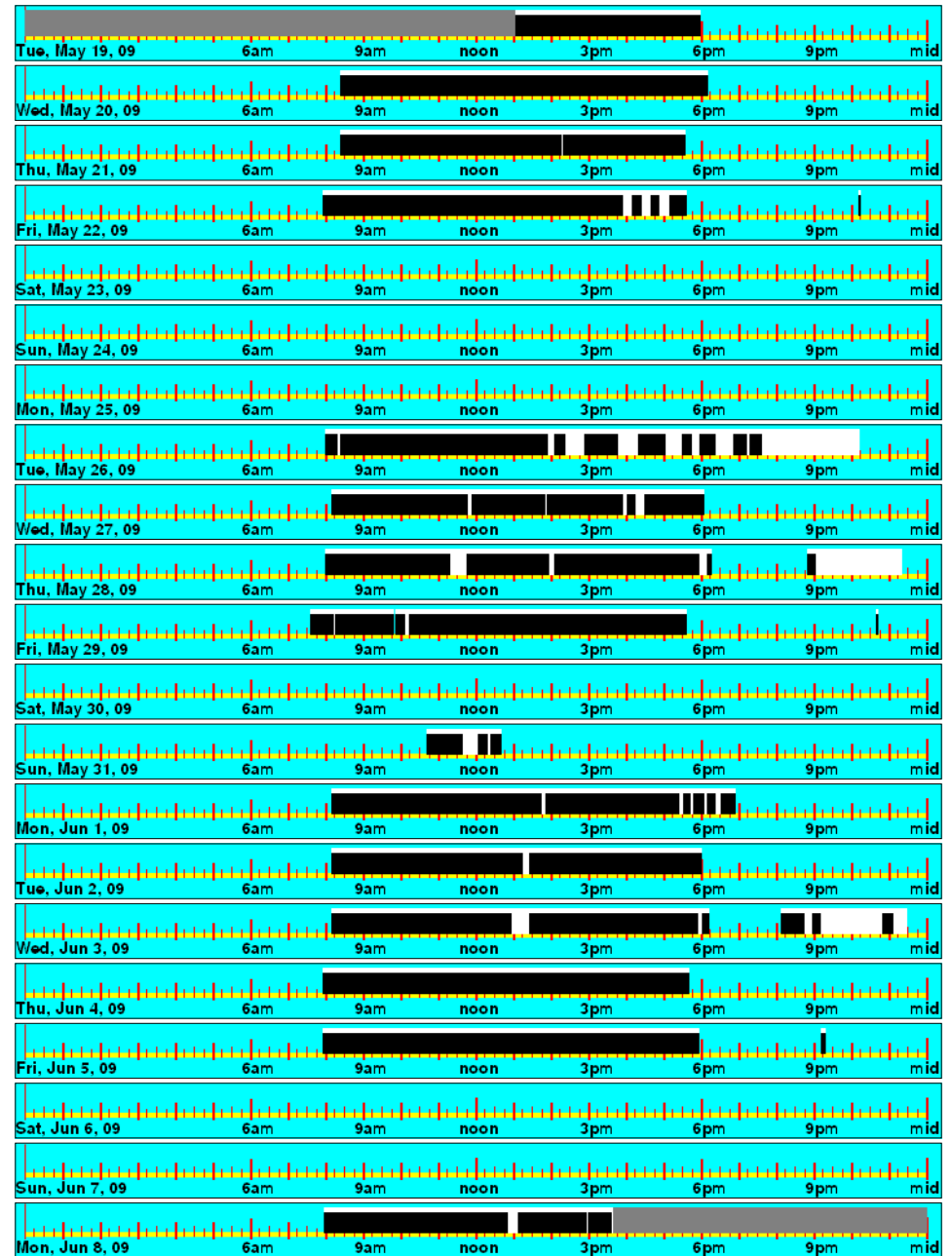
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	29.767	9.922	28.633	9.544
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	29.767	9.922	28.633	9.544

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	143.783	128.600	482.583	50.055	44.769	10.6%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	143.783	128.600	482.583	50.055	44.769	10.6%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.656	0.478	6.944	6.548	11.783	9.516	11.011	9.833	10.556	9.433	9.922	9.544	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.656	0.478	6.944	6.548	11.783	9.516	11.011	9.833	10.556	9.433	9.922	9.544	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	143.783	128.600	482.583	^ ^ ^ ^	50.055	44.769	10.6%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	143.783	128.600	482.583		50.055	44.769	10.6%



rm.216

Area type: Private Office. Logger: 21964. Time delay 10 minutes. Noresco, Newton education center

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	58.983	24.000	44.133	17.958	25.467	10.362
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	58.983	24.000	44.133	17.958	25.467	10.362

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	48.867	16.289	28.533	9.511
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	48.867	16.289	28.533	9.511

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	63.600	24.000	25.800	9.736	14.000	5.283
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	63.600	24.000	25.800	9.736	14.000	5.283

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	48.167	16.056	24.000	8.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	48.167	16.056	24.000	8.000

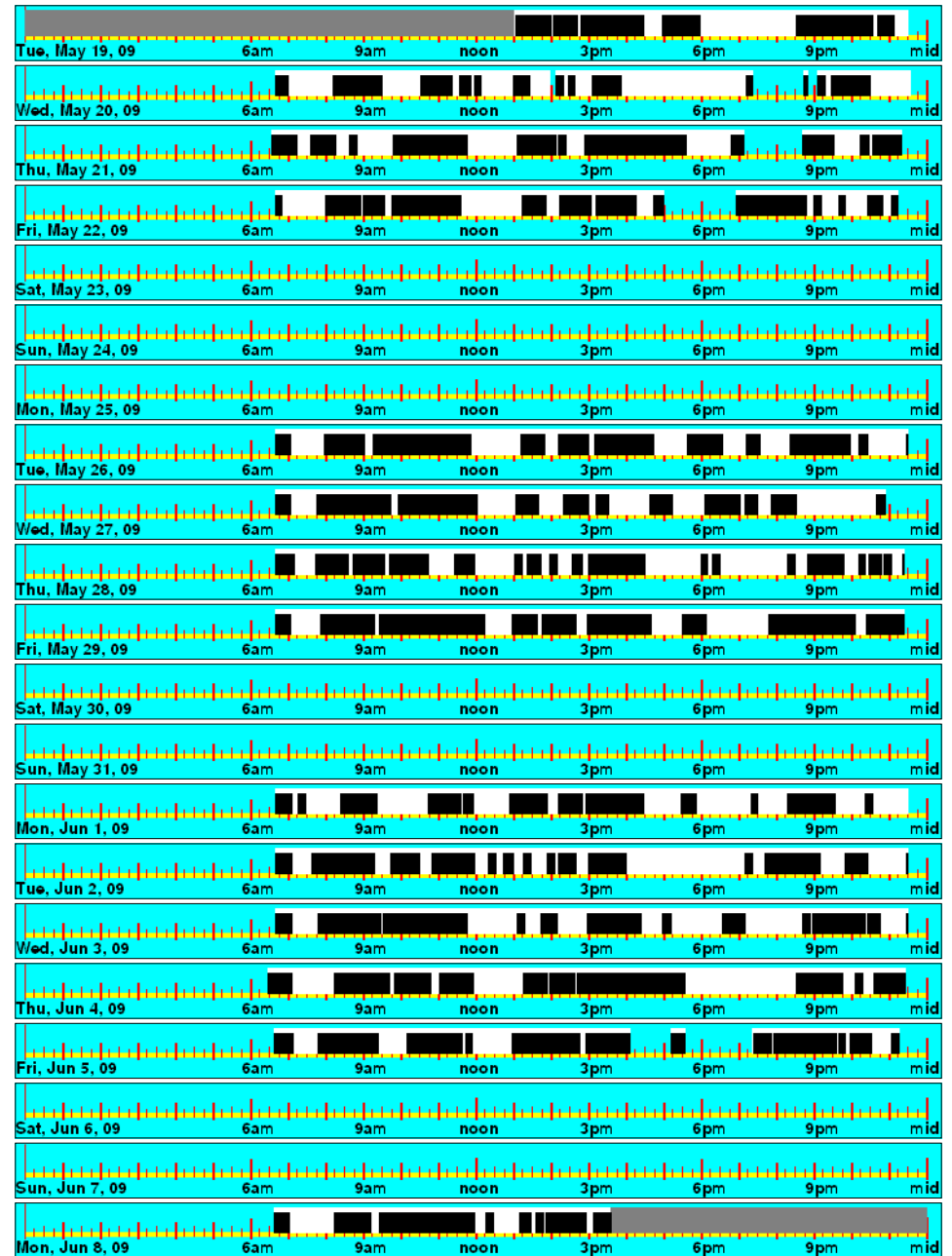
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	45.100	15.033	31.033	10.344
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	45.100	15.033	31.033	10.344

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	212.067	123.033	482.583	73.826	42.831	42.0%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	212.067	123.033	482.583	73.826	42.831	42.0%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	9.736	5.283	17.958	10.362	16.056	8.000	16.289	9.511	15.033	10.344	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	9.736	5.283	17.958	10.362	16.056	8.000	16.289	9.511	15.033	10.344	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	212.067	123.033	482.583	^ ^ ^ ^	73.826	42.831	42.0%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	212.067	123.033	482.583		73.826	42.831	42.0%



rm.219

Area type: Open Space. Logger: 22220. Time delay 10 minutes. Noresco, Newton education center

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	58.900	24.000	25.700	10.472	23.700	9.657
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	58.900	24.000	25.700	10.472	23.700	9.657

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	32.350	10.783	28.733	9.578
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	32.350	10.783	28.733	9.578

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	63.650	24.000	21.783	8.214	18.417	6.944
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	63.650	24.000	21.783	8.214	18.417	6.944

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	30.900	10.300	29.700	9.900
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	30.900	10.300	29.700	9.900

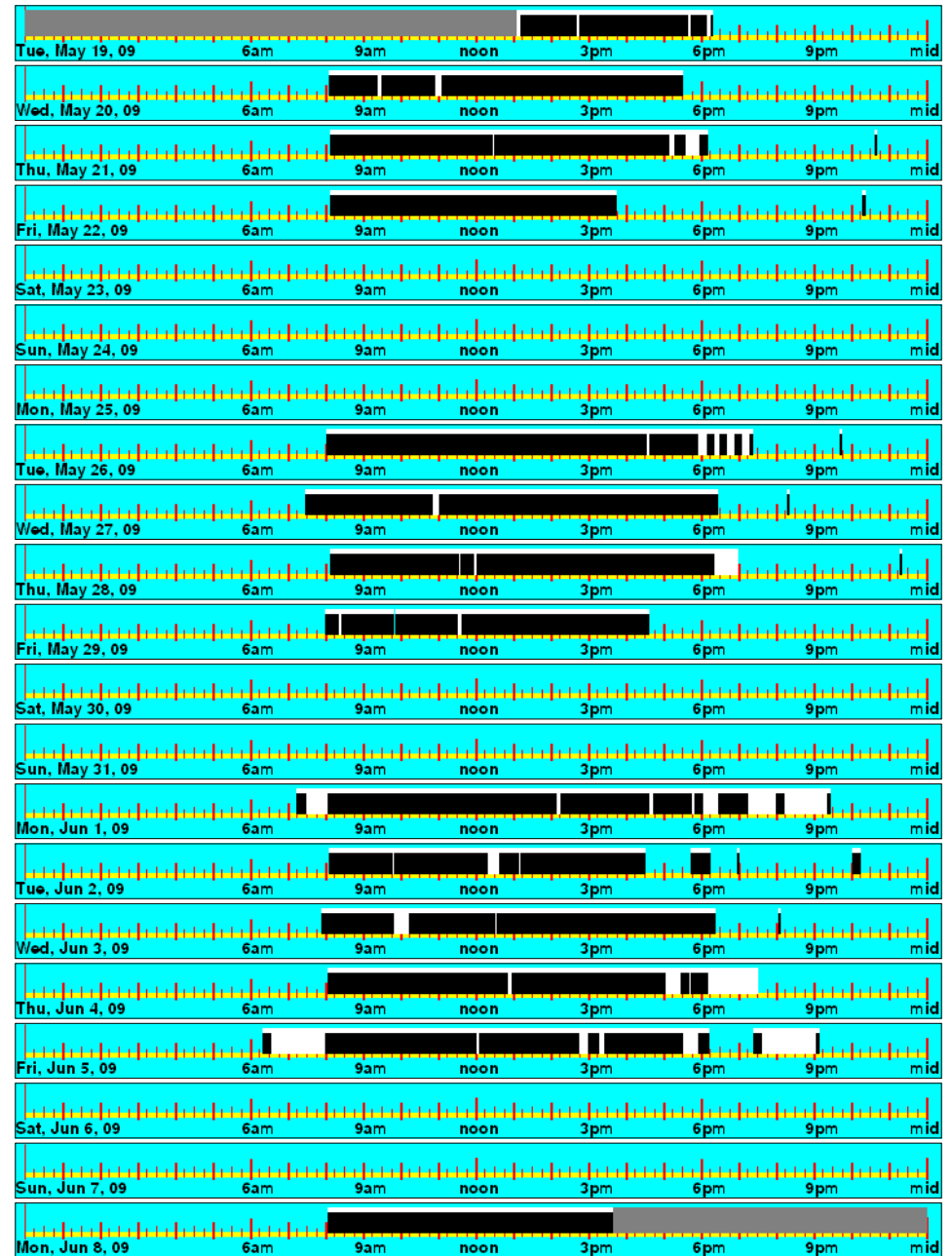
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	29.800	9.933	25.567	8.522
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	29.800	9.933	25.567	8.522

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	140.533	126.117	482.550	48.927	43.908	10.3%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	140.533	126.117	482.550	48.927	43.908	10.3%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	8.214	6.944	10.472	9.657	10.300	9.900	10.783	9.578	9.933	8.522	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	8.214	6.944	10.472	9.657	10.300	9.900	10.783	9.578	9.933	8.522	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	140.533	126.117	482.550	^ ^ ^ ^	48.927	43.908	10.3%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	140.533	126.117	482.550		48.927	43.908	10.3%



rm.314

Area type: Private Office. Logger: 23677. Time delay 10 minutes. Noresco, Newton education center

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	59.783	24.000	16.667	6.691	13.700	5.500
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	59.783	24.000	16.667	6.691	13.700	5.500

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	18.467	6.156	15.867	5.289
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	18.467	6.156	15.867	5.289

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	62.817	24.000	9.983	3.814	9.750	3.725
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	62.817	24.000	9.983	3.814	9.750	3.725

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	20.333	6.778	17.633	5.878
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	20.333	6.778	17.633	5.878

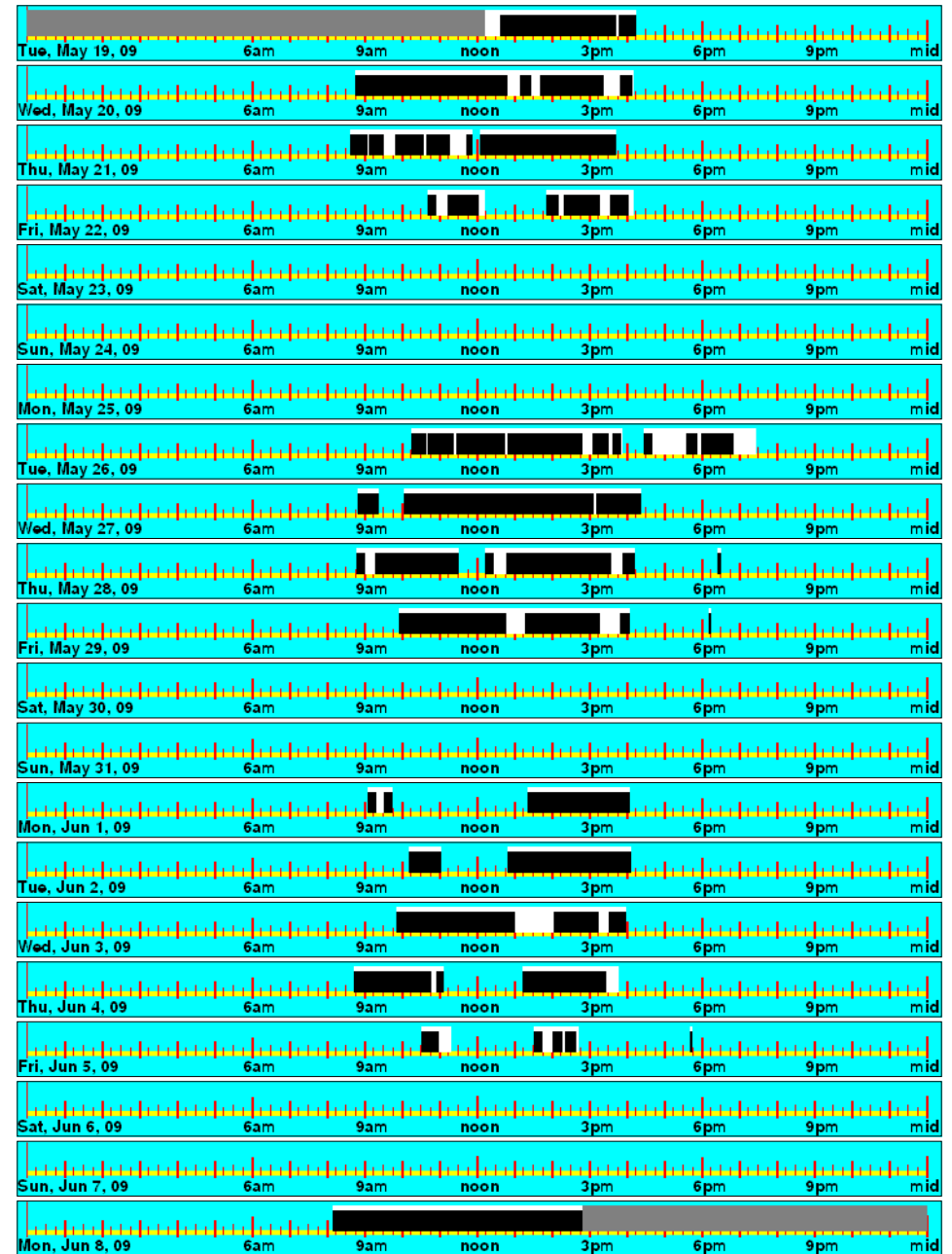
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	11.933	3.978	8.833	2.944
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	11.933	3.978	8.833	2.944

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	77.383	65.783	482.600	26.938	22.900	15.0%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	77.383	65.783	482.600	26.938	22.900	15.0%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	3.814	3.725	6.691	5.500	6.778	5.878	6.156	5.289	3.978	2.944	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	3.814	3.725	6.691	5.500	6.778	5.878	6.156	5.289	3.978	2.944	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	77.383	65.783	482.600	^ ^ ^ ^	26.938	22.900	15.0%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	77.383	65.783	482.600		26.938	22.900	15.0%



rm.317

Area type: Classroom. Logger: 23993. Time delay 10 minutes. Noresco, Newton education center

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	59.567	24.000	19.033	7.669	16.167	6.514
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	59.567	24.000	19.033	7.669	16.167	6.514

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	26.200	8.733	20.200	6.733
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	26.200	8.733	20.200	6.733

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	63.067	24.000	15.050	5.727	13.317	5.068
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	63.067	24.000	15.050	5.727	13.317	5.068

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	26.367	8.789	22.700	7.567
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	26.367	8.789	22.700	7.567

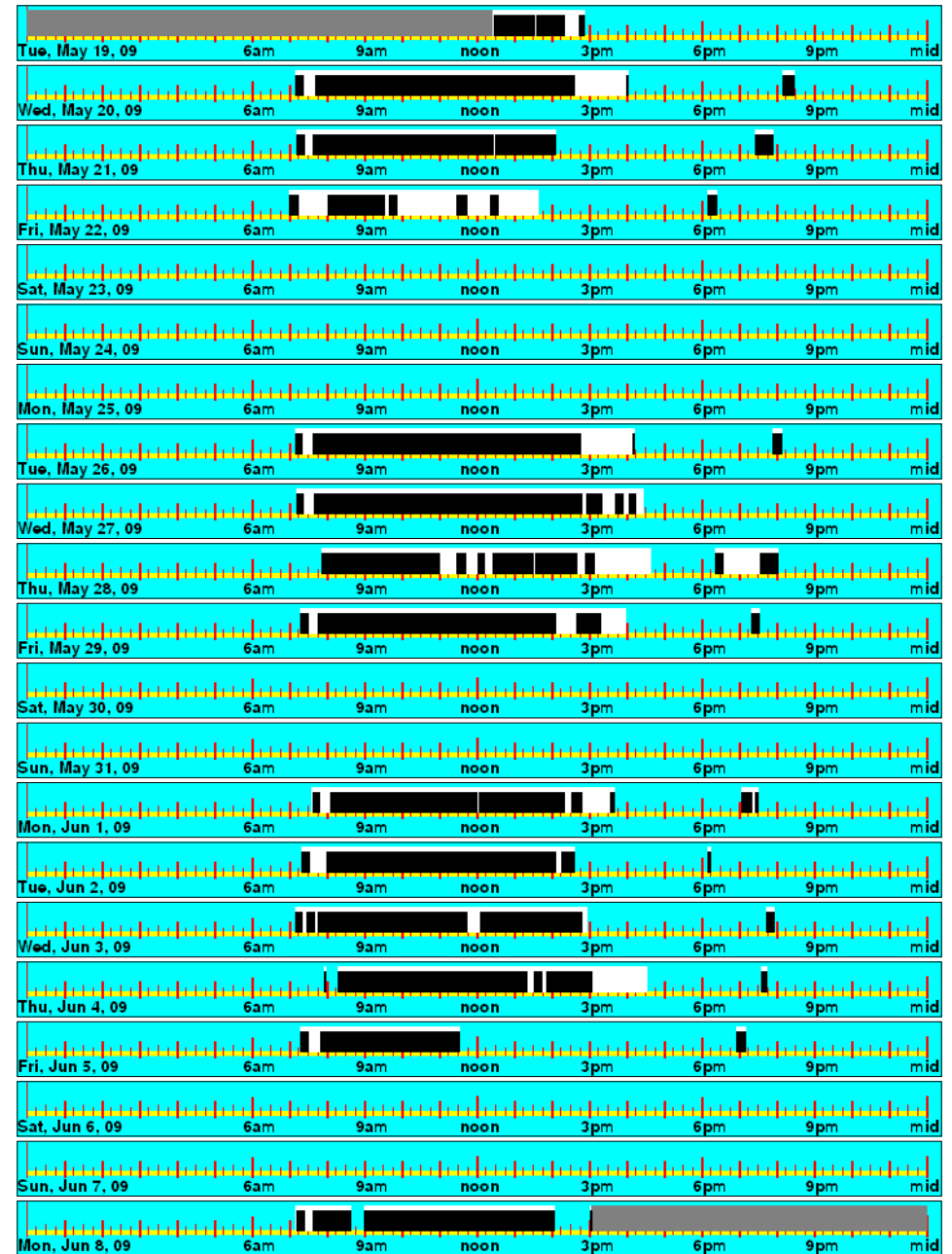
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	72.000	24.000	20.200	6.733	14.033	4.678
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	20.200	6.733	14.033	4.678

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	106.850	86.417	482.633	37.193	30.081	19.1%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	106.850	86.417	482.633	37.193	30.081	19.1%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	5.727	5.068	7.669	6.514	8.789	7.567	8.733	6.733	6.733	4.678	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	5.727	5.068	7.669	6.514	8.789	7.567	8.733	6.733	6.733	4.678	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	106.850	86.417	482.633	^ ^ ^ ^	37.193	30.081	19.1%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	106.850	86.417	482.633		37.193	30.081	19.1%



rm.320

Area type: Private Office. Logger: 24803. Time delay 10 minutes. Noresco, Newton education center

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	59.617	24.000	18.467	7.434	13.000	5.233
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	59.617	24.000	18.467	7.434	13.000	5.233

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	29.267	9.756	19.467	6.489
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	29.267	9.756	19.467	6.489

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	62.950	24.000	5.300	2.021	1.100	0.419
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	62.950	24.000	5.300	2.021	1.100	0.419

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	8.767	2.922	3.567	1.189
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	8.767	2.922	3.567	1.189

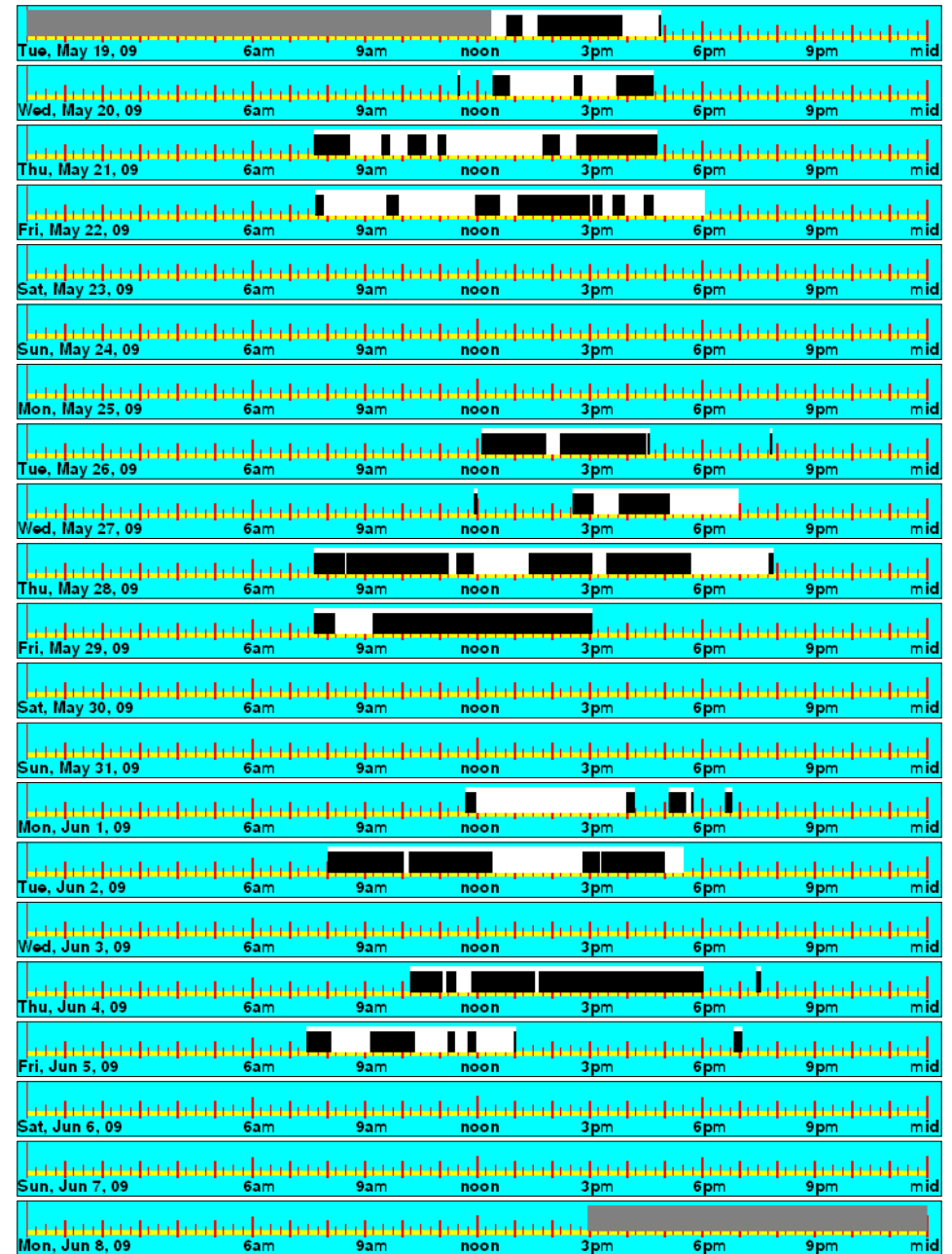
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	72.000	24.000	23.533	7.844	12.567	4.189
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	23.533	7.844	12.567	4.189

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	85.333	49.700	482.567	29.708	17.302	41.8%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	85.333	49.700	482.567	29.708	17.302	41.8%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	OCC	LO	OCC	LO	OCC	LO	OCC	LO	OCC	LO	OCC	LO	OCC
Peak	0.000	0.000	2.021	0.419	7.434	5.233	2.922	1.189	9.756	6.489	7.844	4.189	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	2.021	0.419	7.434	5.233	2.922	1.189	9.756	6.489	7.844	4.189	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	85.333	49.700	482.567	^ ^ ^ ^	29.708	17.302	41.8%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	85.333	49.700	482.567		29.708	17.302	41.8%



rm.320

Area type: Open Space. Logger: 22361. Time delay 10 minutes. Noresco, Newton education center

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	59.650	24.000	24.500	9.858	23.767	9.562
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	59.650	24.000	24.500	9.858	23.767	9.562

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	31.333	10.444	30.033	10.011
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	31.333	10.444	30.033	10.011

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	62.933	24.000	19.017	7.252	18.183	6.934
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	62.933	24.000	19.017	7.252	18.183	6.934

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	35.217	11.739	28.883	9.628
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	35.217	11.739	28.883	9.628

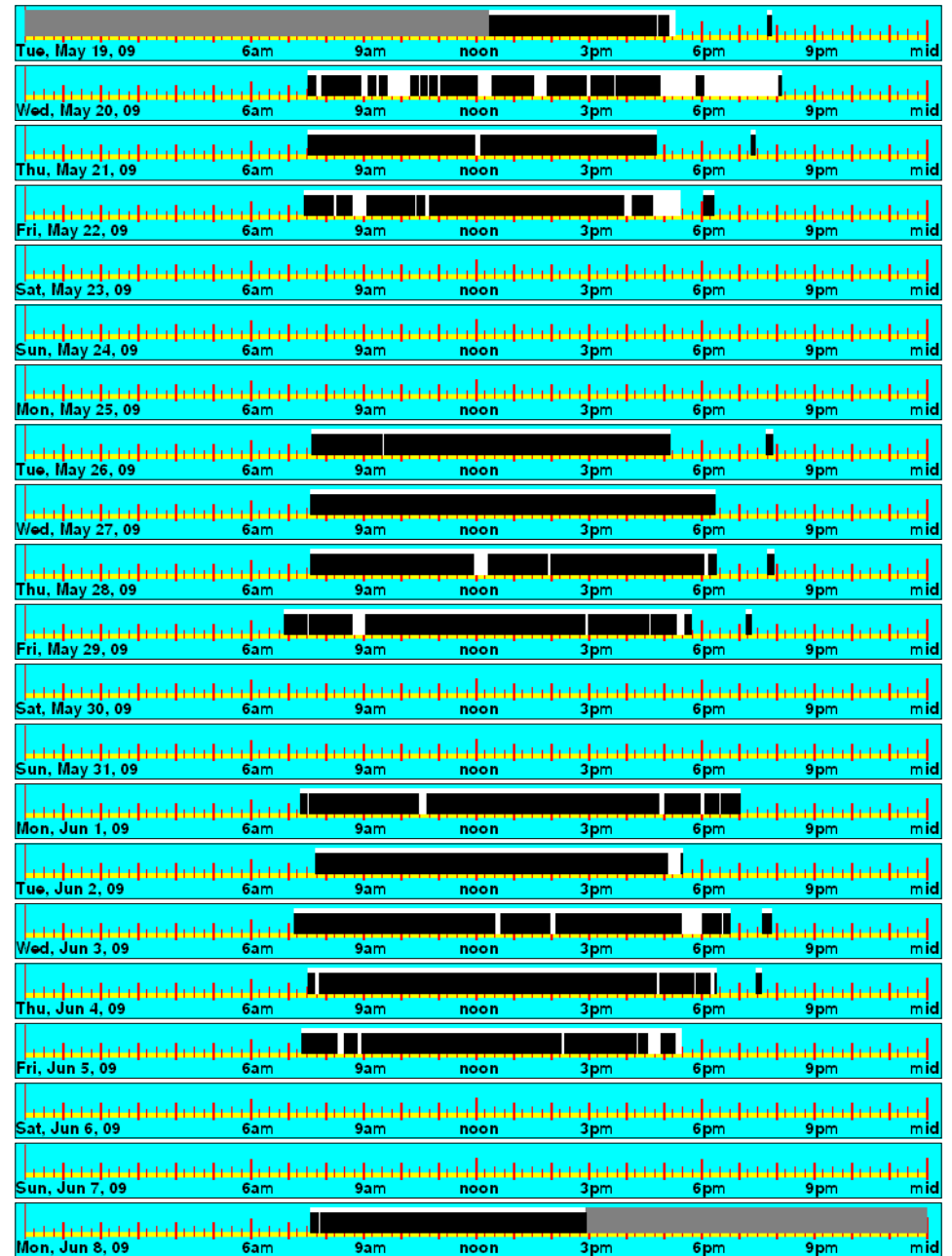
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	72.000	24.000	31.333	10.444	27.600	9.200
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	31.333	10.444	27.600	9.200

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	141.400	128.467	482.583	49.225	44.723	9.1%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	141.400	128.467	482.583	49.225	44.723	9.1%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	7.252	6.934	9.858	9.562	11.739	9.628	10.444	10.011	10.444	9.200	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	7.252	6.934	9.858	9.562	11.739	9.628	10.444	10.011	10.444	9.200	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	141.400	128.467	482.583	^ ^ ^ ^	49.225	44.723	9.1%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	141.400	128.467	482.583		49.225	44.723	9.1%



Area type: Private Office. Logger: 23275. Time delay 10 minutes. Noresco, Newton education center

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	58.883	24.000	17.400	7.092	9.267	3.777
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	58.883	24.000	17.400	7.092	9.267	3.777

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	20.767	6.922	14.233	4.744
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	20.767	6.922	14.233	4.744

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	63.667	24.000	11.033	4.159	10.000	3.770
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	63.667	24.000	11.033	4.159	10.000	3.770

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	20.967	6.989	15.633	5.211
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	20.967	6.989	15.633	5.211

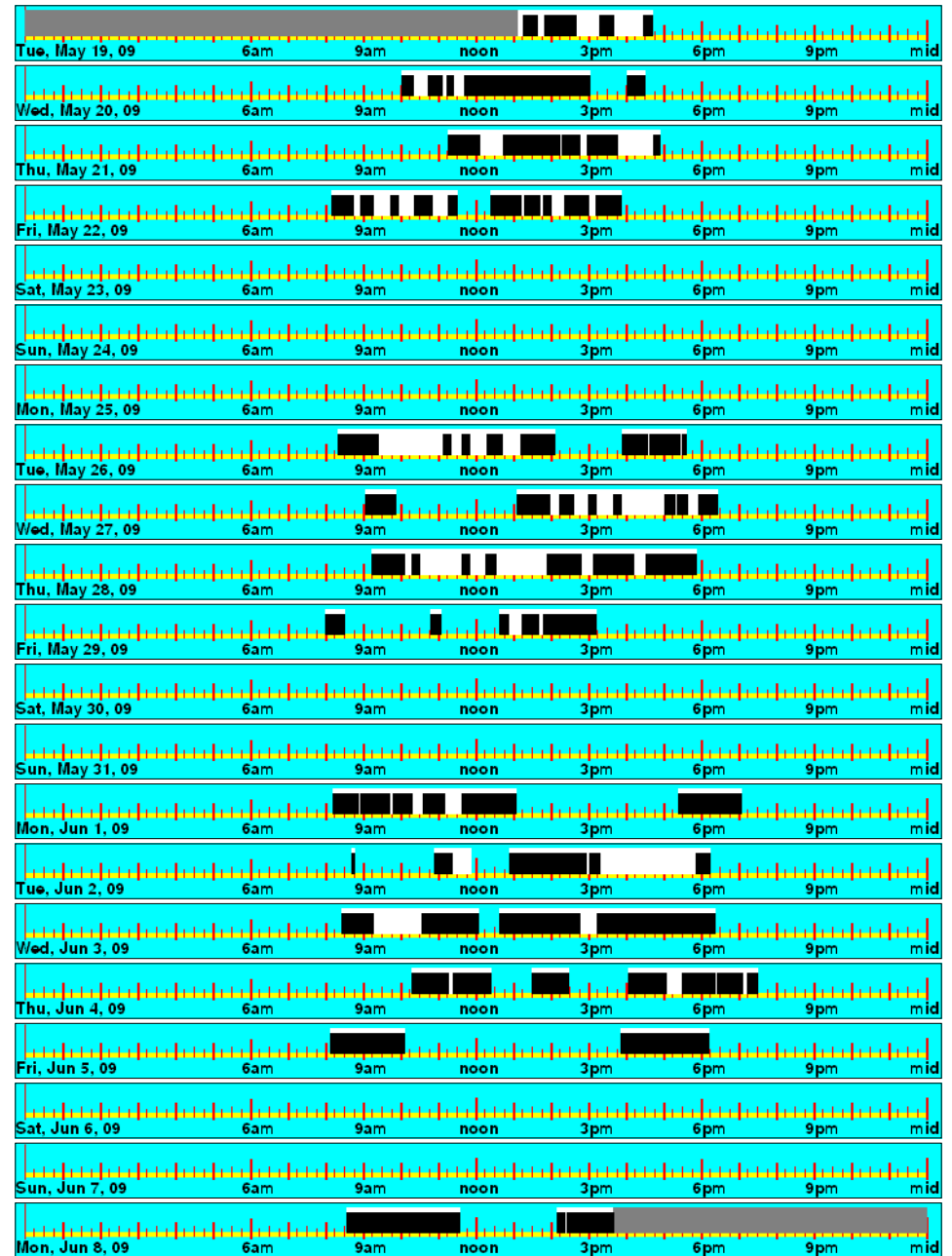
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	72.000	24.000	14.433	4.811	11.633	3.878
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	72.000	24.000	14.433	4.811	11.633	3.878

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	84.600	60.767	482.550	29.454	21.156	28.2%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	84.600	60.767	482.550	29.454	21.156	28.2%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	4.159	3.770	7.092	3.777	6.989	5.211	6.922	4.744	4.811	3.878	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	4.159	3.770	7.092	3.777	6.989	5.211	6.922	4.744	4.811	3.878	0.000	0.000

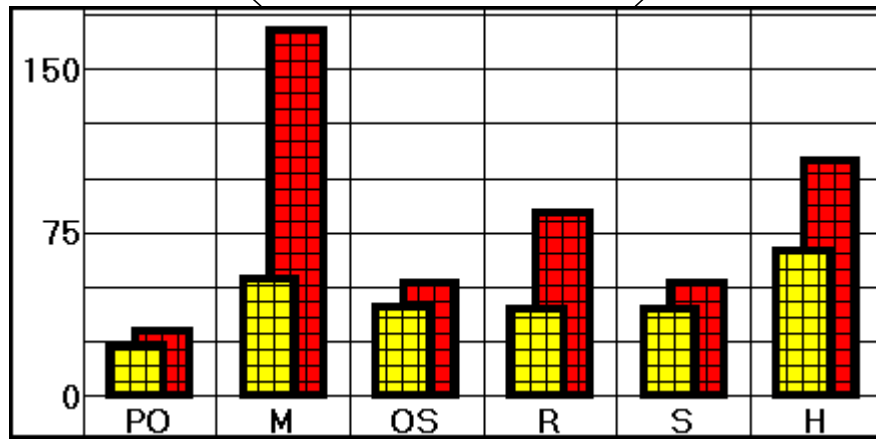
	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	84.600	60.767	482.550	^ ^ ^ ^	29.454	21.156	28.2%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	84.600	60.767	482.550		29.454	21.156	28.2%



Area Type Averages

Noresco, Newton City Hall

Area Type Averages				Normalized Weekly Lights On					Normalized Weekly Occupied					
Area Type		Qty	Watts	Peak	Off	Shldr 1	Shldr 2	Total	Peak	Off	Shldr 1	Shldr 2	Total	% sav
Private Office	PO	3	143	29.61	0.00	0.00	0.00	29.61	22.86	0.00	0.00	0.00	22.86	22.80%
Meeting Rooms	M	1	360	167.99	0.00	0.00	0.00	167.99	53.93	0.00	0.00	0.00	53.93	67.90%
Open Space	OS	8	486	51.95	0.00	0.00	0.00	51.95	40.77	0.00	0.00	0.00	40.77	21.52%
Restroom	R	4	145	83.50	0.00	0.00	0.00	83.50	39.70	0.00	0.00	0.00	39.70	52.46%
Storage	S	1	160	51.97	0.00	0.00	0.00	51.97	39.80	0.00	0.00	0.00	39.80	23.42%
Hallway	H	3	647	107.81	0.00	0.00	0.00	107.81	66.27	0.00	0.00	0.00	66.27	38.53%
Building Average			7358	73.55			0.00	73.55	46.99			0.00	46.99	36.11%



Hours per Week for each Area Type

Data Logger Detail for Noresco, Newton City Hall Page 1 of 1

All Loggers Listed			Hours Installed						Lights On					Occupied					
Logger	Room Location	Ty	Total	Peak	Off	Shldr 1	Shldr 2	Installed	Removed	Peak	Off	Shldr 1	Shldr 2	Total	Peak	Off	Shldr 1	Shldr 2	Total
21176	100	OS	333.83	333.83	0.00	0.00	0.00	5/26/09 11:45 AM	6/09/09 9:34 AM	90.40	0.00	0.00	0.00	90.40	70.00	0.00	0.00	0.00	70.00
21408	101	OS	316.87	316.87	0.00	0.00	0.00	5/26/09 11:43 AM	6/08/09 4:34 PM	108.02	0.00	0.00	0.00	108.02	90.68	0.00	0.00	0.00	90.68
23842	104 file room	OS	317.45	317.45	0.00	0.00	0.00	5/26/09 11:27 AM	6/08/09 4:53 PM	112.62	0.00	0.00	0.00	112.62	98.55	0.00	0.00	0.00	98.55
23156	104 office rear	PO	317.45	317.45	0.00	0.00	0.00	5/26/09 11:28 AM	6/08/09 4:54 PM	59.73	0.00	0.00	0.00	59.73	53.40	0.00	0.00	0.00	53.40
20691	104 office#1	PO	317.55	317.55	0.00	0.00	0.00	5/26/09 11:25 AM	6/08/09 4:57 PM	45.98	0.00	0.00	0.00	45.98	33.75	0.00	0.00	0.00	33.75
23061	105 copy	S	317.25	317.25	0.00	0.00	0.00	5/26/09 11:36 AM	6/08/09 4:50 PM	98.13	0.00	0.00	0.00	98.13	75.17	0.00	0.00	0.00	75.17
20901	108 hall	H	317.20	317.20	0.00	0.00	0.00	5/26/09 11:56 AM	6/08/09 5:07 PM	112.98	0.00	0.00	0.00	112.98	105.88	0.00	0.00	0.00	105.88
21740	10a	OS	317.00	317.00	0.00	0.00	0.00	5/26/09 12:13 PM	6/08/09 5:12 PM	79.87	0.00	0.00	0.00	79.87	49.80	0.00	0.00	0.00	49.80
23485	116a	OS	317.27	317.27	0.00	0.00	0.00	5/26/09 11:48 AM	6/08/09 5:03 PM	88.68	0.00	0.00	0.00	88.68	79.62	0.00	0.00	0.00	79.62
23253	1st fl. mens	R	317.35	317.35	0.00	0.00	0.00	5/26/09 11:31 AM	6/08/09 4:51 PM	216.97	0.00	0.00	0.00	216.97	98.65	0.00	0.00	0.00	98.65
24838	1st floor hall	H	317.27	317.27	0.00	0.00	0.00	5/26/09 11:44 AM	6/08/09 4:59 PM	217.25	0.00	0.00	0.00	217.25	127.22	0.00	0.00	0.00	127.22
22016	203	PO	317.13	317.13	0.00	0.00	0.00	5/26/09 11:18 AM	6/08/09 4:25 PM	62.08	0.00	0.00	0.00	62.08	42.42	0.00	0.00	0.00	42.42
20544	214	OS	317.27	317.27	0.00	0.00	0.00	5/26/09 11:13 AM	6/08/09 4:28 PM	114.72	0.00	0.00	0.00	114.72	98.45	0.00	0.00	0.00	98.45
23681	220	M	317.33	317.33	0.00	0.00	0.00	5/26/09 11:11 AM	6/08/09 4:30 PM	317.32	0.00	0.00	0.00	317.32	101.87	0.00	0.00	0.00	101.87
23976	2nd fl. mens	R	317.25	317.25	0.00	0.00	0.00	5/26/09 11:15 AM	6/08/09 4:29 PM	210.73	0.00	0.00	0.00	210.73	63.53	0.00	0.00	0.00	63.53
20823	basement mens	R	317.10	317.10	0.00	0.00	0.00	5/26/09 12:11 PM	6/08/09 5:16 PM	82.47	0.00	0.00	0.00	82.47	62.50	0.00	0.00	0.00	62.50
23353	cafe	OS	316.98	316.98	0.00	0.00	0.00	5/26/09 12:15 PM	6/08/09 5:13 PM	125.20	0.00	0.00	0.00	125.20	92.38	0.00	0.00	0.00	92.38
24409	hall 2nd	H	317.18	317.18	0.00	0.00	0.00	5/26/09 11:17 AM	6/08/09 4:27 PM	280.47	0.00	0.00	0.00	280.47	142.30	0.00	0.00	0.00	142.30
24117	mens by 116a	R	317.27	317.27	0.00	0.00	0.00	5/26/09 11:50 AM	6/08/09 5:05 PM	120.62	0.00	0.00	0.00	120.62	75.22	0.00	0.00	0.00	75.22
21965	weights&measures	OS	333.82	333.82	0.00	0.00	0.00	5/26/09 11:47 AM	6/09/09 9:35 AM	73.22	0.00	0.00	0.00	73.22	41.82	0.00	0.00	0.00	41.82

Normalized Data Logger Detail for Noresco, Newton City Hall Page 1 of 1

All Loggers Listed			Load	Normalized Weekly Hours of Use					Normalized Weekly Hours of Occupancy					
Logger	Room Location	Ty	Watts	Peak	Off	Shldr 1	Shldr 2	Total	Peak	Off	Shldr 1	Shldr 2	Total	% sav
21176	100	OS	800	45.49	0.00	0.00	0.00	45.49	35.23	0.00	0.00	0.00	35.23	22.55%
21408	101	OS	600	57.27	0.00	0.00	0.00	57.27	48.08	0.00	0.00	0.00	48.08	16.05%
23842	104 file room	OS	560	59.60	0.00	0.00	0.00	59.60	52.15	0.00	0.00	0.00	52.15	12.50%
23156	104 office rear	PO	160	31.61	0.00	0.00	0.00	31.61	28.26	0.00	0.00	0.00	28.26	10.60%
20691	104 office#1	PO	160	24.33	0.00	0.00	0.00	24.33	17.86	0.00	0.00	0.00	17.86	26.59%
23061	105 copy	S	160	51.97	0.00	0.00	0.00	51.97	39.80	0.00	0.00	0.00	39.80	23.42%
20901	108 hall	H	240	59.84	0.00	0.00	0.00	59.84	56.08	0.00	0.00	0.00	56.08	6.28%
21740	10a	OS	220	42.33	0.00	0.00	0.00	42.33	26.39	0.00	0.00	0.00	26.39	37.66%
23485	116a	OS	320	46.96	0.00	0.00	0.00	46.96	42.16	0.00	0.00	0.00	42.16	10.22%
23253	1st fl. mens	R	240	114.86	0.00	0.00	0.00	114.86	52.22	0.00	0.00	0.00	52.22	54.54%
24838	1st floor hall	H	800	115.04	0.00	0.00	0.00	115.04	67.36	0.00	0.00	0.00	67.36	41.45%
22016	203	PO	110	32.89	0.00	0.00	0.00	32.89	22.47	0.00	0.00	0.00	22.47	31.68%
20544	214	OS	110	60.75	0.00	0.00	0.00	60.75	52.13	0.00	0.00	0.00	52.13	14.19%
23681	220	M	360	167.99	0.00	0.00	0.00	167.99	53.93	0.00	0.00	0.00	53.93	67.90%
23976	2nd fl. mens	R	60	111.59	0.00	0.00	0.00	111.59	33.64	0.00	0.00	0.00	33.64	69.85%
20823	basement mens	R	160	43.69	0.00	0.00	0.00	43.69	33.11	0.00	0.00	0.00	33.11	24.22%
23353	cafe	OS	800	66.36	0.00	0.00	0.00	66.36	48.96	0.00	0.00	0.00	48.96	26.22%
24409	hall 2nd	H	900	148.55	0.00	0.00	0.00	148.55	75.37	0.00	0.00	0.00	75.37	49.26%
24117	mens by 116a	R	120	63.87	0.00	0.00	0.00	63.87	39.83	0.00	0.00	0.00	39.83	37.64%
21965	weights&measu	OS	480	36.85	0.00	0.00	0.00	36.85	21.05	0.00	0.00	0.00	21.05	42.88%

Building Summary Totals for Noresco, Newton City Hall Page 1 of 1

Building Summary Totals				Lights On KWHR					Occupied KWHR				
Area Type		Qty	Watts	Peak	Off	Shldr 1	Shldr 2	Total	Peak	Off	Shldr 1	Shldr 2	Total
Private Office	PO	3	429	13	0	0	0	13	10	0	0	0	10
Meeting Rooms	M	1	360	60	0	0	0	60	19	0	0	0	19
Open Space	OS	8	3888	202	0	0	0	202	159	0	0	0	159
Restroom	R	4	580	48	0	0	0	48	23	0	0	0	23
Storage	S	1	160	8	0	0	0	8	6	0	0	0	6
Hallway	H	3	1941	209	0	0	0	209	129	0	0	0	129
Building Totals			7358	541			0	541	346			0	346

Area type: Open Space. Logger: 21176. Time delay 10 minutes. Noresco, Newton City Hall

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normalized Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normalized Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	45.833	24.000	18.567	9.722	9.733	5.097
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	45.833	24.000	18.567	9.722	9.733	5.097

Thu	Total Log Time	Hours /Day	Logged Lites On	Normalized Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	17.833	8.917	15.600	7.800
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	17.833	8.917	15.600	7.800

Sat	Total Log Time	Hours /Day	Logged Lites On	Normalized Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normalized Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	17.733	8.867	15.467	7.733
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	17.733	8.867	15.467	7.733

Wed	Total Log Time	Hours /Day	Logged Lites On	Normalized Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	18.167	9.083	16.033	8.017
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	18.167	9.083	16.033	8.017

Fri	Total Log Time	Hours /Day	Logged Lites On	Normalized Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	18.100	9.050	13.167	6.583
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	18.100	9.050	13.167	6.583

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	90.400	70.000	333.833	45.493	35.227	22.6%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	90.400	70.000	333.833	45.493	35.227	22.6%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	8.867	7.733	9.722	5.097	9.083	8.017	8.917	7.800	9.050	6.583	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	8.867	7.733	9.722	5.097	9.083	8.017	8.917	7.800	9.050	6.583	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	90.400	70.000	333.833	^ ^ ^ ^	45.493	35.227	22.6%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	90.400	70.000	333.833		45.493	35.227	22.6%



Area type: Open Space. Logger: 21408. Time delay 10 minutes. Noresco, Newton City Hall

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	36.300	24.000	26.100	17.256	20.433	13.510
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	36.300	24.000	26.100	17.256	20.433	13.510

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	23.567	11.783	17.533	8.767
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	23.567	11.783	17.533	8.767

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	40.567	24.000	17.517	10.363	17.183	10.166
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	40.567	24.000	17.517	10.363	17.183	10.166

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	23.300	11.650	18.167	9.083
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	23.300	11.650	18.167	9.083

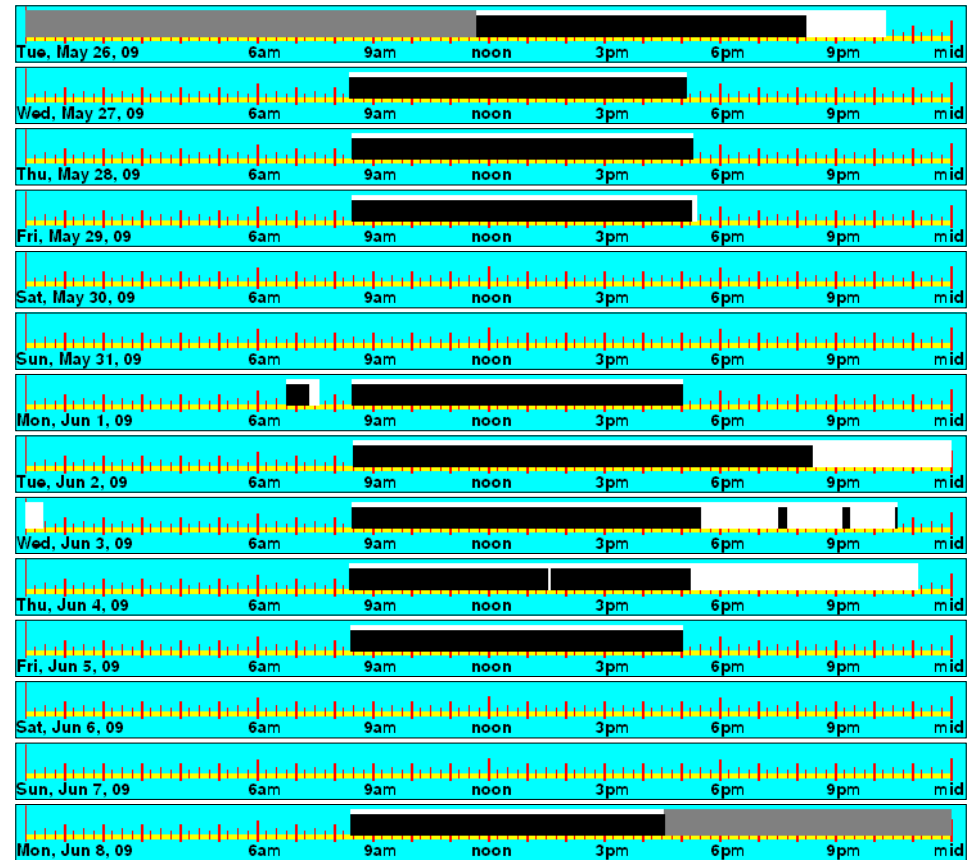
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	17.533	8.767	17.367	8.683
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	17.533	8.767	17.367	8.683

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	108.017	90.683	316.867	57.270	48.080	16.0%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	108.017	90.683	316.867	57.270	48.080	16.0%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	10.363	10.166	17.256	13.510	11.650	9.083	11.783	8.767	8.767	8.683	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	10.363	10.166	17.256	13.510	11.650	9.083	11.783	8.767	8.767	8.683	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	108.017	90.683	316.867	^ ^ ^ ^	57.270	48.080	16.0%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	108.017	90.683	316.867		57.270	48.080	16.0%



104 file room

Area type: Open Space. Logger: 23842. Time delay 10 minutes. Noresco, Newton City Hall

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	36.567	24.000	21.133	13.871	18.400	12.077
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	36.567	24.000	21.133	13.871	18.400	12.077

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	26.800	13.400	21.167	10.583
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	26.800	13.400	21.167	10.583

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	40.883	24.000	19.850	11.653	19.017	11.163
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	40.883	24.000	19.850	11.653	19.017	11.163

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	23.500	11.750	21.200	10.600
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	23.500	11.750	21.200	10.600

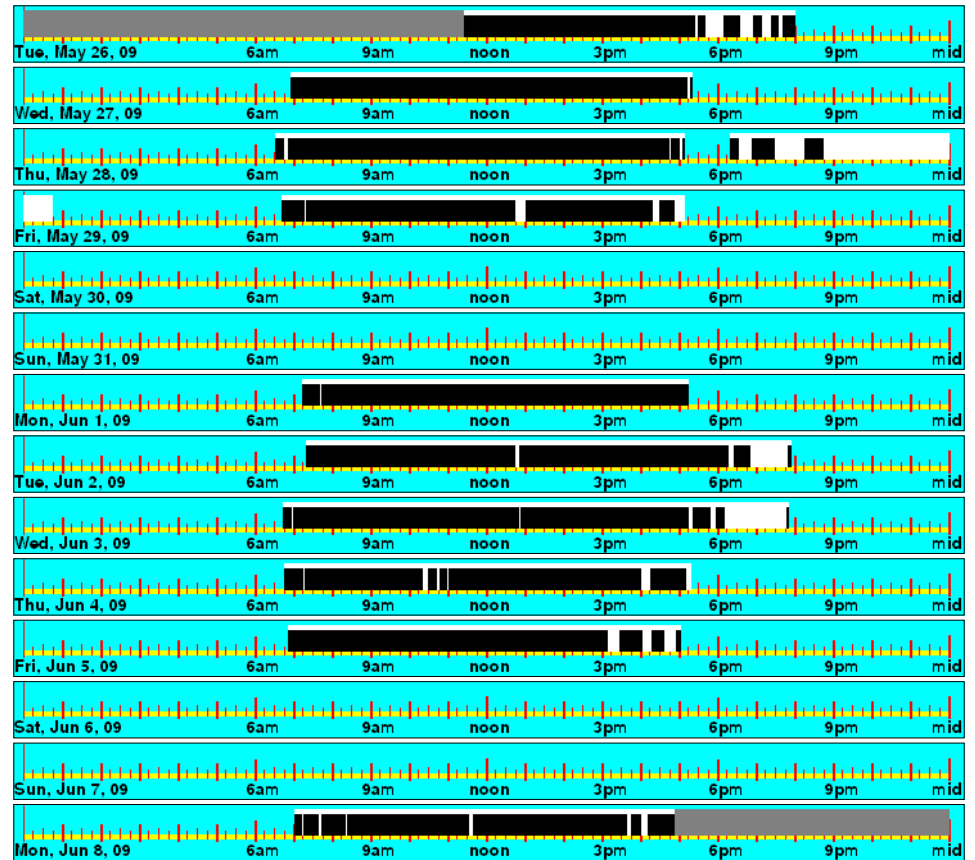
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	21.333	10.667	18.767	9.383
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	21.333	10.667	18.767	9.383

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	112.617	98.550	317.450	59.599	52.154	12.5%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	112.617	98.550	317.450	59.599	52.154	12.5%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	11.653	11.163	13.871	12.077	11.750	10.600	13.400	10.583	10.667	9.383	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	11.653	11.163	13.871	12.077	11.750	10.600	13.400	10.583	10.667	9.383	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	112.617	98.550	317.450	^ ^ ^ ^	59.599	52.154	12.5%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	112.617	98.550	317.450		59.599	52.154	12.5%



104 office rear

Area type: Private Office. Logger: 23156. Time delay 10 minutes. Noresco, Newton City Hall

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	36.550	24.000	14.100	9.259	11.267	7.398
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	36.550	24.000	14.100	9.259	11.267	7.398

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	7.567	3.783	7.100	3.550
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	7.567	3.783	7.100	3.550

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	0.333	0.167	0.333	0.167
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.333	0.167	0.333	0.167

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	40.900	24.000	14.400	8.450	13.700	8.039
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	40.900	24.000	14.400	8.450	13.700	8.039

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	14.233	7.117	12.067	6.033
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	14.233	7.117	12.067	6.033

Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	9.100	4.550	8.933	4.467
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	9.100	4.550	8.933	4.467

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	59.733	53.400	317.450	31.612	28.260	10.6%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	59.733	53.400	317.450	31.612	28.260	10.6%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	8.450	8.039	9.259	7.398	7.117	6.033	3.783	3.550	4.550	4.467	0.167	0.167
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	8.450	8.039	9.259	7.398	7.117	6.033	3.783	3.550	4.550	4.467	0.167	0.167

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	59.733	53.400	317.450	^ ^ ^ ^	31.612	28.260	10.6%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	59.733	53.400	317.450		31.612	28.260	10.6%



104 office#1

Area type: Private Office. Logger: 20691. Time delay 10 minutes. Noresco, Newton City Hall

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	36.600	24.000	13.100	8.590	6.467	4.240
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	36.600	24.000	13.100	8.590	6.467	4.240

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	13.033	6.517	10.433	5.217
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	13.033	6.517	10.433	5.217

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	40.950	24.000	8.817	5.167	8.283	4.855
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	40.950	24.000	8.817	5.167	8.283	4.855

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	1.400	0.700	1.400	0.700
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	1.400	0.700	1.400	0.700

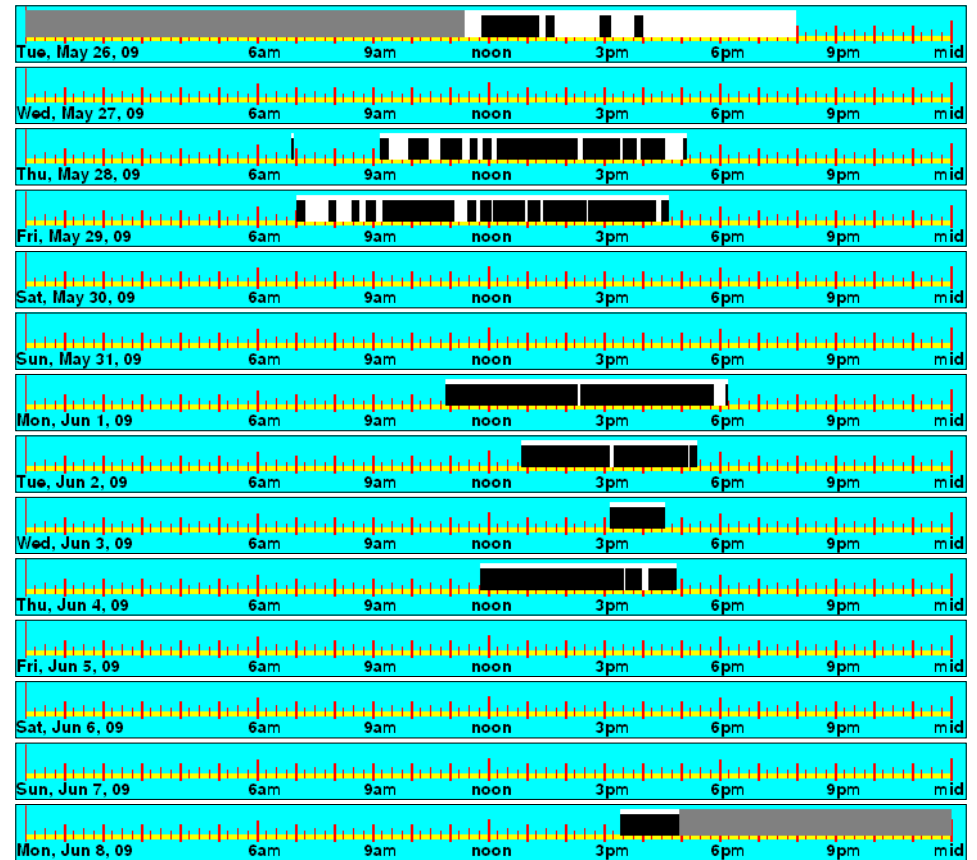
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	9.633	4.817	7.167	3.583
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	9.633	4.817	7.167	3.583

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	45.983	33.750	317.550	24.328	17.855	26.6%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	45.983	33.750	317.550	24.328	17.855	26.6%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	5.167	4.855	8.590	4.240	0.700	0.700	6.517	5.217	4.817	3.583	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	5.167	4.855	8.590	4.240	0.700	0.700	6.517	5.217	4.817	3.583	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	45.983	33.750	317.550	^ ^ ^ ^	24.328	17.855	26.6%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	45.983	33.750	317.550		24.328	17.855	26.6%



105 copy

Area type: Storage. Logger: 23061. Time delay 10 minutes. Noresco, Newton City Hall

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	0.500	0.250	0.200	0.100
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.500	0.250	0.200	0.100

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	36.417	24.000	20.167	13.291	14.367	9.468
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	36.417	24.000	20.167	13.291	14.367	9.468

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	19.017	9.508	15.350	7.675
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	19.017	9.508	15.350	7.675

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	40.833	24.000	18.383	10.805	14.650	8.611
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	40.833	24.000	18.383	10.805	14.650	8.611

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	19.767	9.883	16.967	8.483
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	19.767	9.883	16.967	8.483

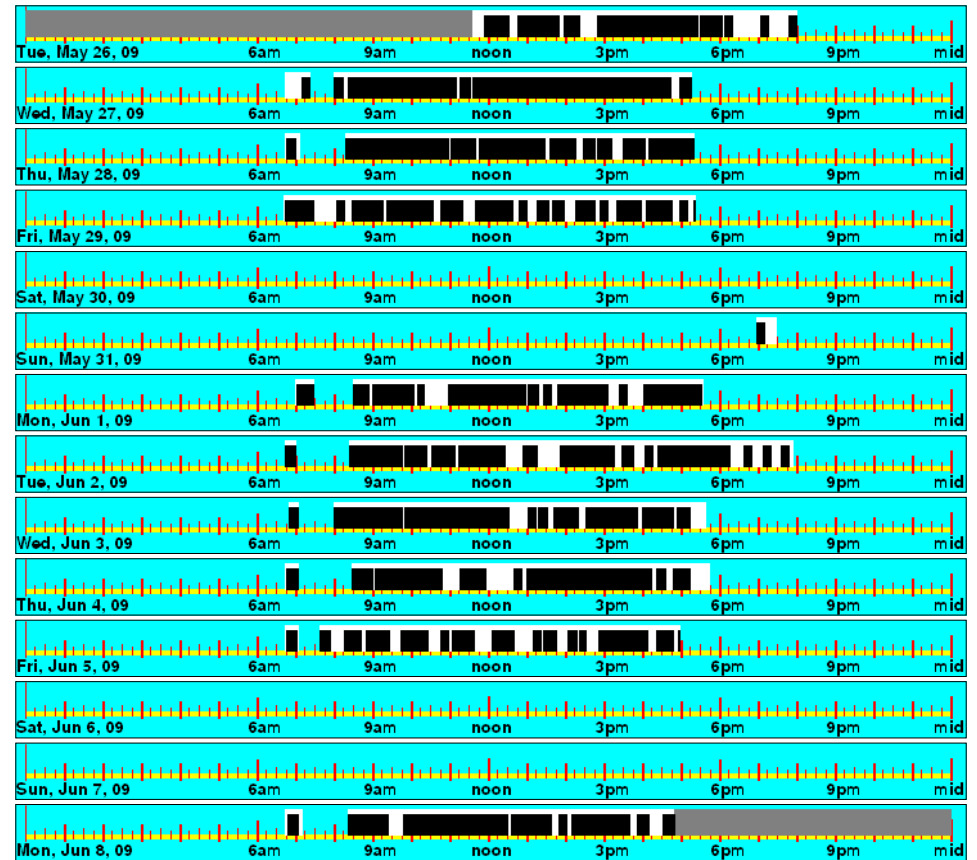
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	20.300	10.150	13.633	6.817
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	20.300	10.150	13.633	6.817

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	98.133	75.167	317.250	51.967	39.805	23.4%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	98.133	75.167	317.250	51.967	39.805	23.4%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.250	0.100	10.805	8.611	13.291	9.468	9.883	8.483	9.508	7.675	10.150	6.817	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.250	0.100	10.805	8.611	13.291	9.468	9.883	8.483	9.508	7.675	10.150	6.817	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	98.133	75.167	317.250	^ ^ ^ ^	51.967	39.805	23.4%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	98.133	75.167	317.250		51.967	39.805	23.4%



108 hall

Area type: Hallway. Logger: 20901. Time delay 10 minutes. Noresco, Newton City Hall

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	5.167	2.583	3.967	1.983
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	5.167	2.583	3.967	1.983

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	36.083	24.000	16.533	10.997	15.367	10.221
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	36.083	24.000	16.533	10.997	15.367	10.221

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	22.967	11.483	21.633	10.817
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	22.967	11.483	21.633	10.817

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	0.067	0.033	0.067	0.033
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.067	0.033	0.067	0.033

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	41.117	24.000	25.017	14.602	23.617	13.785
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	41.117	24.000	25.017	14.602	23.617	13.785

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	20.367	10.183	19.300	9.650
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	20.367	10.183	19.300	9.650

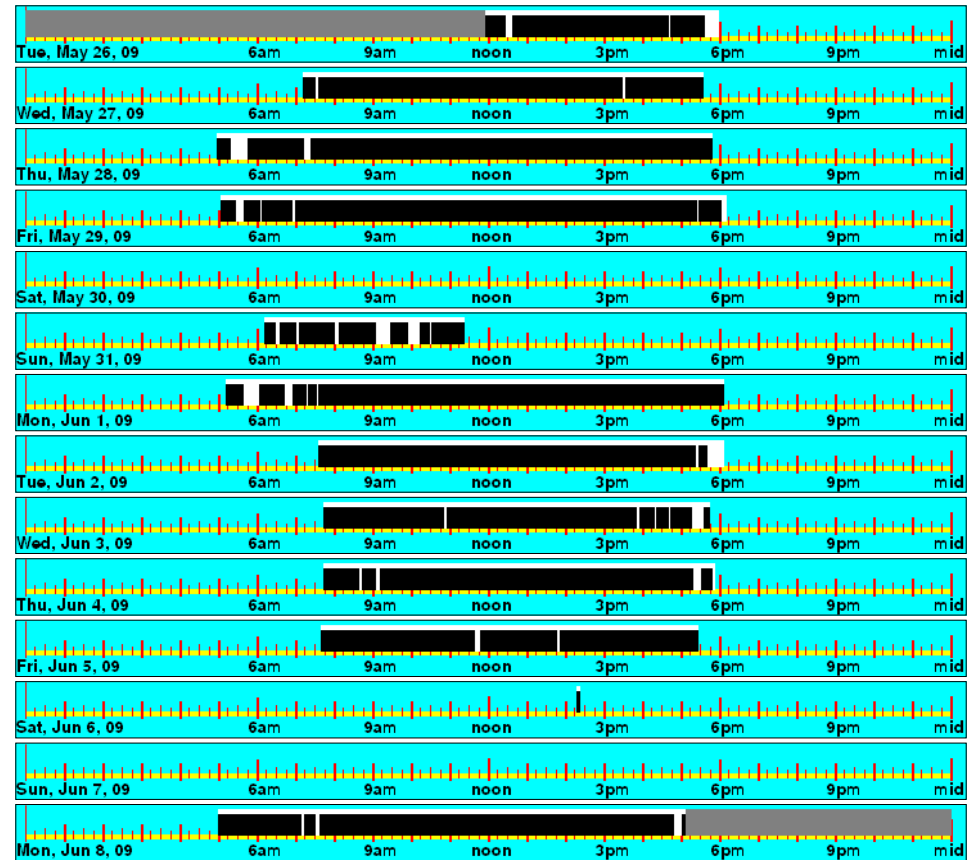
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	22.867	11.433	21.933	10.967
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	22.867	11.433	21.933	10.967

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	112.983	105.883	317.200	59.840	56.079	6.3%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	112.983	105.883	317.200	59.840	56.079	6.3%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	2.583	1.983	14.602	13.785	10.997	10.221	10.183	9.650	11.483	10.817	11.433	10.967	0.033	0.033
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	2.583	1.983	14.602	13.785	10.997	10.221	10.183	9.650	11.483	10.817	11.433	10.967	0.033	0.033

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	112.983	105.883	317.200	^ ^ ^ ^	59.840	56.079	6.3%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	112.983	105.883	317.200		59.840	56.079	6.3%



10a

Area type: Open Space. Logger: 21740. Time delay 10 minutes. Noresco, Newton City Hall

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	35.800	24.000	9.967	6.682	6.267	4.201
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	35.800	24.000	9.967	6.682	6.267	4.201

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	17.633	8.817	11.433	5.717
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	17.633	8.817	11.433	5.717

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	0.033	0.017	0.033	0.017
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.033	0.017	0.033	0.017

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	41.200	24.000	17.933	10.447	10.567	6.155
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	41.200	24.000	17.933	10.447	10.567	6.155

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	17.233	8.617	11.167	5.583
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	17.233	8.617	11.167	5.583

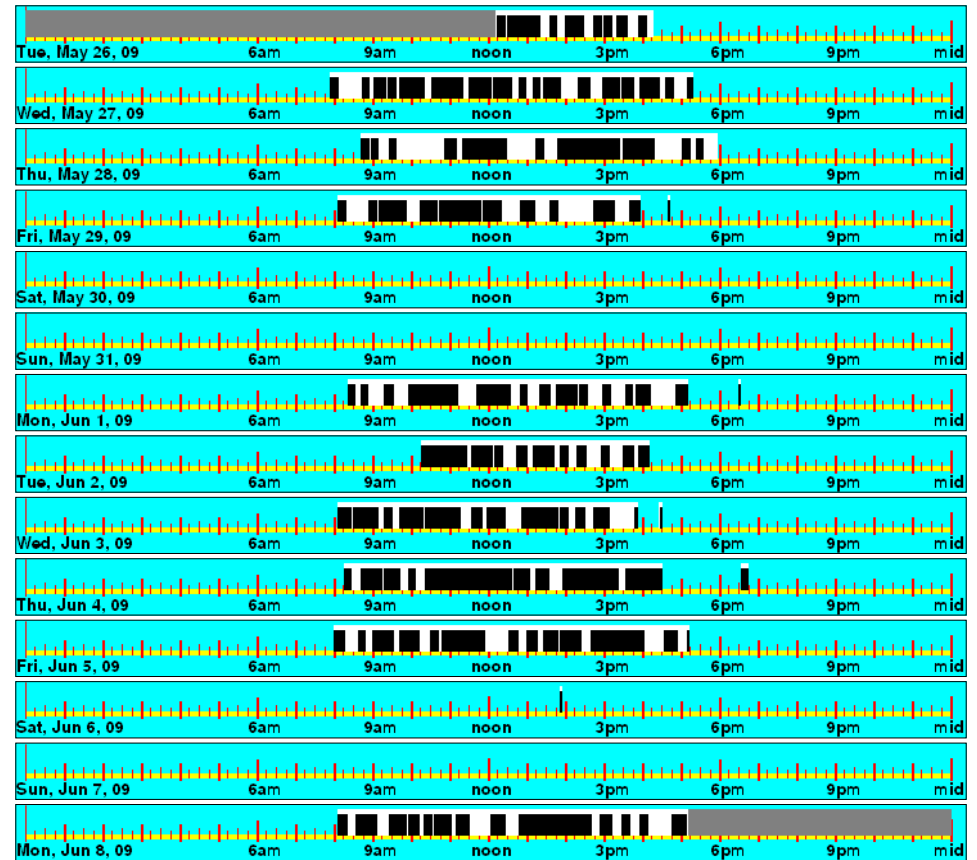
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	17.067	8.533	10.333	5.167
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	17.067	8.533	10.333	5.167

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	79.867	49.800	317.000	42.327	26.392	37.6%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	79.867	49.800	317.000	42.327	26.392	37.6%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	10.447	6.155	6.682	4.201	8.617	5.583	8.817	5.717	8.533	5.167	0.017	0.017
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	10.447	6.155	6.682	4.201	8.617	5.583	8.817	5.717	8.533	5.167	0.017	0.017

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	79.867	49.800	317.000	^ ^ ^ ^	42.327	26.392	37.6%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	79.867	49.800	317.000		42.327	26.392	37.6%



116a

Area type: Open Space. Logger: 23485. Time delay 10 minutes. Noresco, Newton City Hall

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	36.217	24.000	15.267	10.117	13.433	8.902
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	36.217	24.000	15.267	10.117	13.433	8.902

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	18.367	9.183	15.733	7.867
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	18.367	9.183	15.733	7.867

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	41.050	24.000	17.950	10.495	16.583	9.695
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	41.050	24.000	17.950	10.495	16.583	9.695

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	18.633	9.317	17.633	8.817
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	18.633	9.317	17.633	8.817

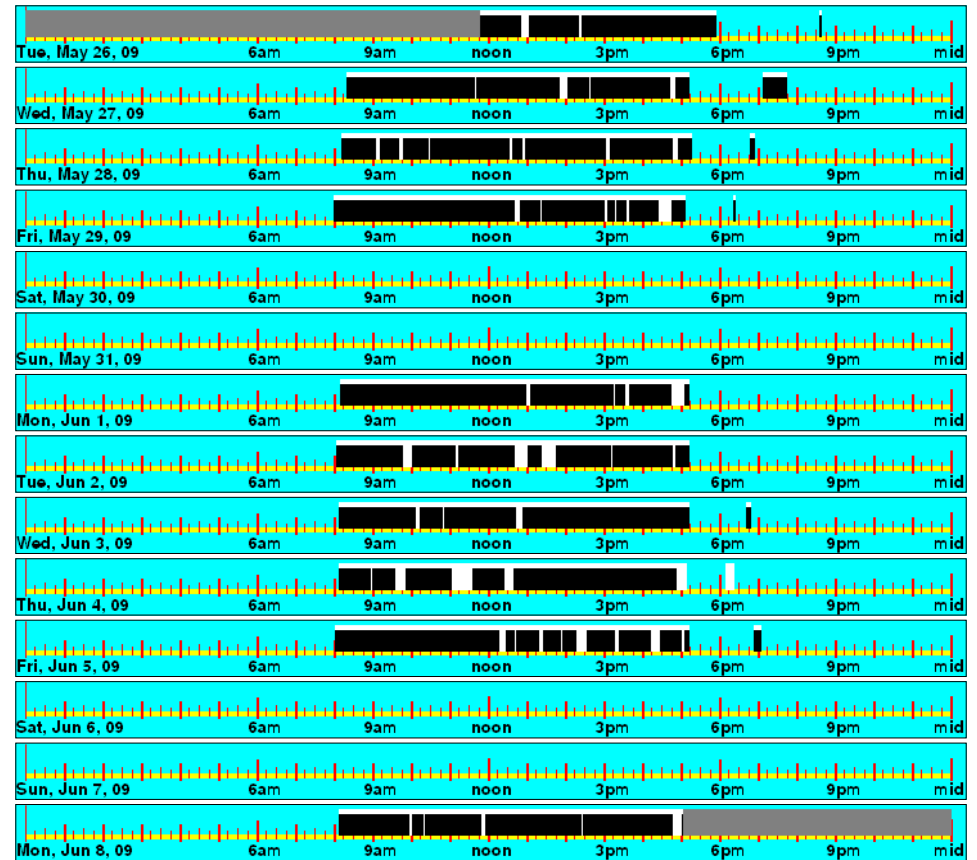
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	18.467	9.233	16.233	8.117
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	18.467	9.233	16.233	8.117

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	88.683	79.617	317.267	46.960	42.159	10.2%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	88.683	79.617	317.267	46.960	42.159	10.2%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	10.495	9.695	10.117	8.902	9.317	8.817	9.183	7.867	9.233	8.117	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	10.495	9.695	10.117	8.902	9.317	8.817	9.183	7.867	9.233	8.117	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	88.683	79.617	317.267	^ ^ ^ ^	46.960	42.159	10.2%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	88.683	79.617	317.267		46.960	42.159	10.2%



1st fl. mens

Area type: Restroom. Logger: 23253. Time delay 10 minutes. Noresco, Newton City Hall

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	1.650	0.825	0.917	0.458
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	1.650	0.825	0.917	0.458

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	36.500	24.000	36.500	24.000	18.300	12.033
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	36.500	24.000	36.500	24.000	18.300	12.033

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	48.000	24.000	20.567	10.283
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	20.567	10.283

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	40.850	24.000	40.317	23.687	19.133	11.241
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	40.850	24.000	40.317	23.687	19.133	11.241

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	48.000	24.000	21.567	10.783
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	21.567	10.783

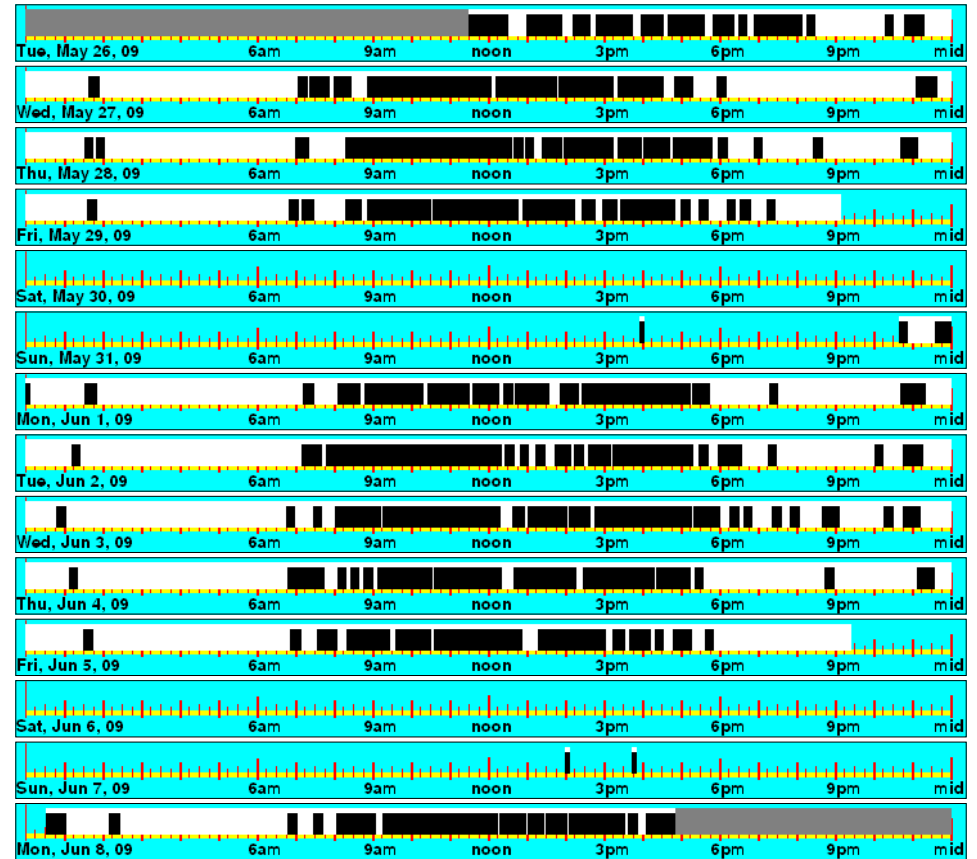
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	42.500	21.250	18.167	9.083
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	42.500	21.250	18.167	9.083

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	216.967	98.650	317.350	114.859	52.224	54.5%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	216.967	98.650	317.350	114.859	52.224	54.5%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.825	0.458	23.687	11.241	24.000	12.033	24.000	10.783	24.000	10.283	21.250	9.083	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.825	0.458	23.687	11.241	24.000	12.033	24.000	10.783	24.000	10.283	21.250	9.083	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	216.967	98.650	317.350	^ ^ ^ ^	114.859	52.224	54.5%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	216.967	98.650	317.350		114.859	52.224	54.5%



1st floor hall

Area type: Hallway. Logger: 24838. Time delay 10 minutes. Noresco, Newton City Hall

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	2.733	1.367	0.450	0.225
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	2.733	1.367	0.450	0.225

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	36.283	24.000	36.283	24.000	25.133	16.625
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	36.283	24.000	36.283	24.000	25.133	16.625

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	48.000	24.000	25.267	12.633
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	25.267	12.633

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	40.983	24.000	40.967	23.990	24.667	14.445
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	40.983	24.000	40.967	23.990	24.667	14.445

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	48.000	24.000	27.467	13.733
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	27.467	13.733

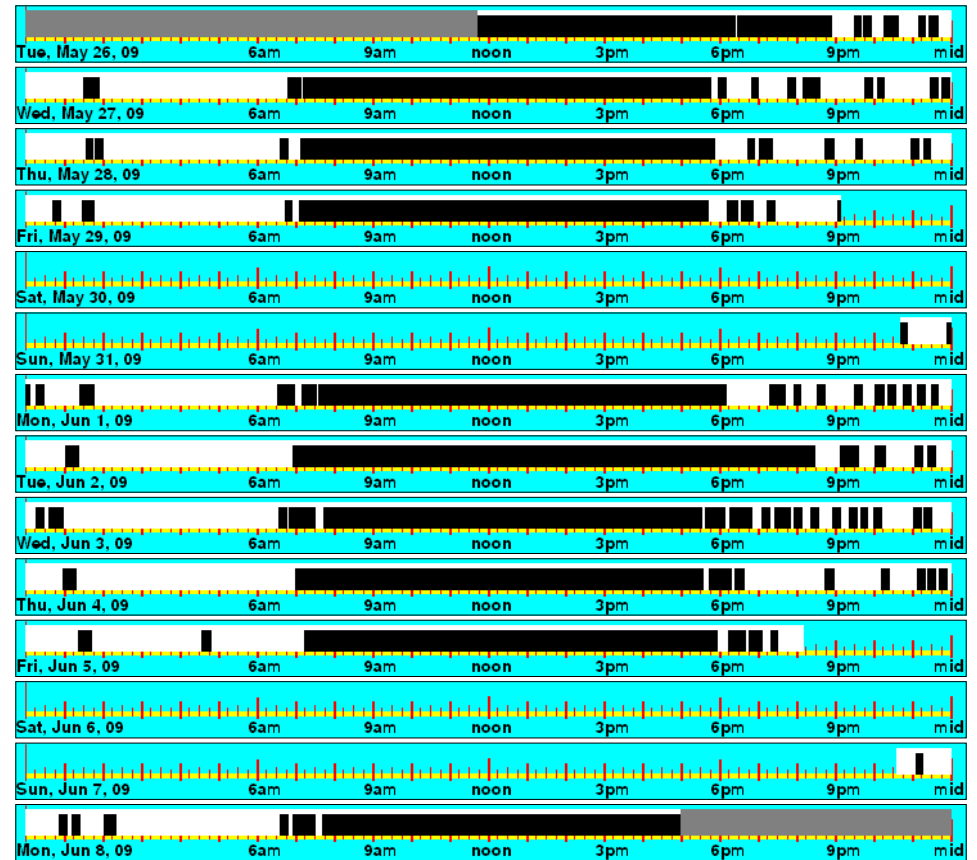
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	41.267	20.633	24.233	12.117
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	41.267	20.633	24.233	12.117

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	217.250	127.217	317.267	115.039	67.364	41.4%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	217.250	127.217	317.267	115.039	67.364	41.4%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	1.367	0.225	23.990	14.445	24.000	16.625	24.000	13.733	24.000	12.633	20.633	12.117	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	1.367	0.225	23.990	14.445	24.000	16.625	24.000	13.733	24.000	12.633	20.633	12.117	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	217.250	127.217	317.267	^ ^ ^ ^	115.039	67.364	41.4%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	217.250	127.217	317.267		115.039	67.364	41.4%



Area type: Private Office. Logger: 22016. Time delay 10 minutes. Noresco, Newton City Hall

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	2.433	1.217	0.367	0.183
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	2.433	1.217	0.367	0.183

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	36.717	24.000	11.517	7.528	8.417	5.502
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	36.717	24.000	11.517	7.528	8.417	5.502

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	13.500	6.750	10.233	5.117
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	13.500	6.750	10.233	5.117

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	1.833	0.917	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	1.833	0.917	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	40.417	24.000	11.550	6.859	8.550	5.077
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	40.417	24.000	11.550	6.859	8.550	5.077

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	13.550	6.775	9.683	4.842
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	13.550	6.775	9.683	4.842

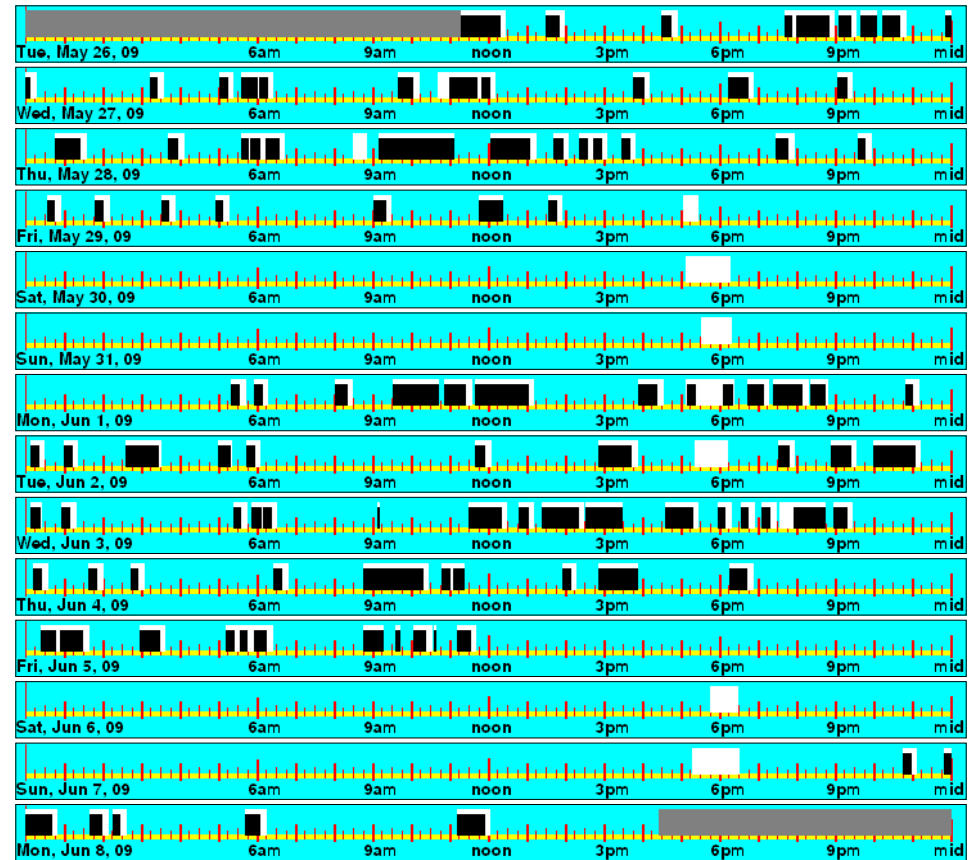
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	7.700	3.850	5.167	2.583
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	7.700	3.850	5.167	2.583

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	62.083	42.417	317.133	32.888	22.470	31.7%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	62.083	42.417	317.133	32.888	22.470	31.7%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	1.217	0.183	6.859	5.077	7.528	5.502	6.775	4.842	6.750	5.117	3.850	2.583	0.917	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	1.217	0.183	6.859	5.077	7.528	5.502	6.775	4.842	6.750	5.117	3.850	2.583	0.917	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	62.083	42.417	317.133	^ ^ ^ ^	32.888	22.470	31.7%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	62.083	42.417	317.133		32.888	22.470	31.7%



Area type: Open Space. Logger: 20544. Time delay 10 minutes. Noresco, Newton City Hall

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	1.033	0.517	0.700	0.350
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	1.033	0.517	0.700	0.350

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	36.800	24.000	22.600	14.739	17.067	11.130
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	36.800	24.000	22.600	14.739	17.067	11.130

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	21.600	10.800	21.133	10.567
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	21.600	10.800	21.133	10.567

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	40.467	24.000	20.083	11.911	18.283	10.843
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	40.467	24.000	20.083	11.911	18.283	10.843

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	27.000	13.500	20.833	10.417
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	27.000	13.500	20.833	10.417

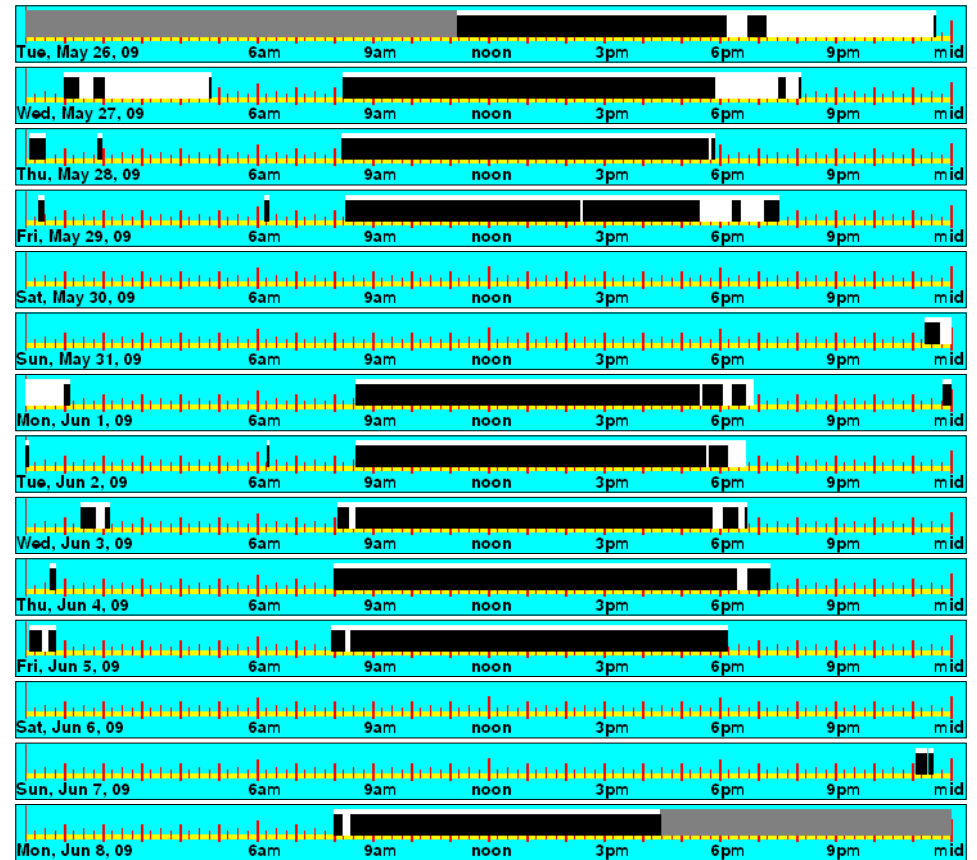
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	22.400	11.200	20.433	10.217
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	22.400	11.200	20.433	10.217

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	114.717	98.450	317.267	60.745	52.132	14.2%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	114.717	98.450	317.267	60.745	52.132	14.2%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.517	0.350	11.911	10.843	14.739	11.130	13.500	10.417	10.800	10.567	11.200	10.217	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.517	0.350	11.911	10.843	14.739	11.130	13.500	10.417	10.800	10.567	11.200	10.217	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	114.717	98.450	317.267	^ ^ ^ ^	60.745	52.132	14.2%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	114.717	98.450	317.267		60.745	52.132	14.2%



Area type: Meeting Rooms. Logger: 23681. Time delay 10 minutes. Noresco, Newton City Hall

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	48.000	24.000	0.467	0.233
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	0.467	0.233

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	36.833	24.000	36.833	24.000	16.500	10.751
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	36.833	24.000	36.833	24.000	16.500	10.751

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	48.000	24.000	21.283	10.642
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	21.283	10.642

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	48.000	24.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	40.500	24.000	40.483	23.990	21.467	12.721
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	40.500	24.000	40.483	23.990	21.467	12.721

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	48.000	24.000	21.633	10.817
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	21.633	10.817

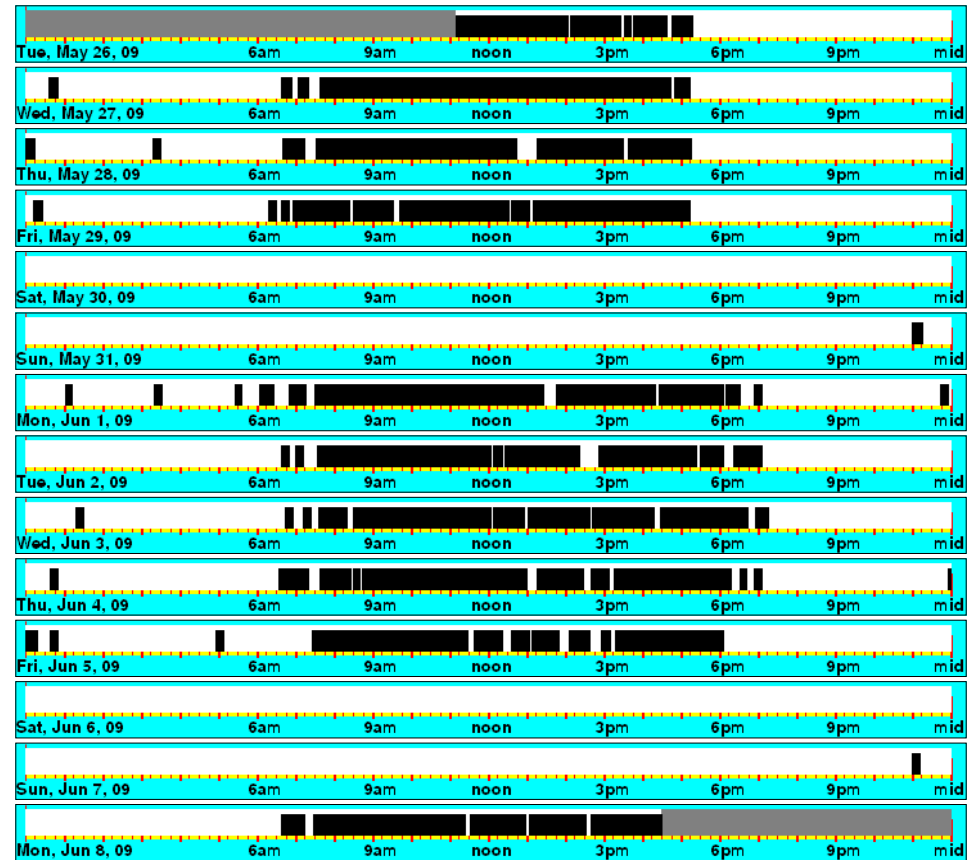
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	48.000	24.000	20.517	10.258
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	20.517	10.258

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	317.317	101.867	317.333	167.991	53.929	67.9%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	317.317	101.867	317.333	167.991	53.929	67.9%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	24.000	0.233	23.990	12.721	24.000	10.751	24.000	10.817	24.000	10.642	24.000	10.258	24.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	24.000	0.233	23.990	12.721	24.000	10.751	24.000	10.817	24.000	10.642	24.000	10.258	24.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	317.317	101.867	317.333	^ ^ ^ ^	167.991	53.929	67.9%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	317.317	101.867	317.333		167.991	53.929	67.9%



2nd fl. mens

Area type: Restroom. Logger: 23976. Time delay 10 minutes. Noresco, Newton City Hall

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	1.200	0.600	0.200	0.100
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	1.200	0.600	0.200	0.100

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	36.767	24.000	36.767	24.000	12.733	8.312
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	36.767	24.000	36.767	24.000	12.733	8.312

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	48.000	24.000	15.767	7.883
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	15.767	7.883

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	40.483	24.000	36.433	21.599	10.533	6.245
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	40.483	24.000	36.433	21.599	10.533	6.245

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	45.933	22.967	13.467	6.733
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	45.933	22.967	13.467	6.733

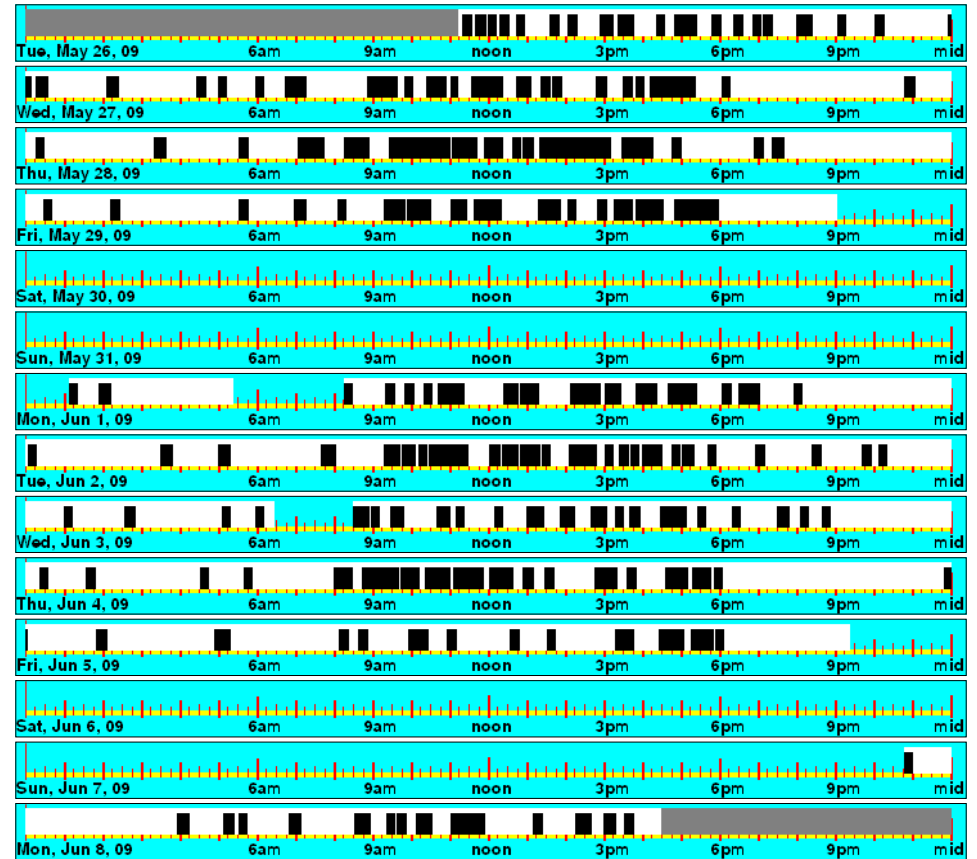
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	42.400	21.200	10.833	5.417
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	42.400	21.200	10.833	5.417

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	210.733	63.533	317.250	111.594	33.644	69.9%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	210.733	63.533	317.250	111.594	33.644	69.9%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.600	0.100	21.599	6.245	24.000	8.312	22.967	6.733	24.000	7.883	21.200	5.417	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.600	0.100	21.599	6.245	24.000	8.312	22.967	6.733	24.000	7.883	21.200	5.417	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	210.733	63.533	317.250	^ ^ ^ ^	111.594	33.644	69.9%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	210.733	63.533	317.250		111.594	33.644	69.9%



basement mens

Area type: Restroom. Logger: 20823. Time delay 10 minutes. Noresco, Newton City Hall

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	0.100	0.050	0.100	0.050
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.100	0.050	0.100	0.050

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	35.833	24.000	14.500	9.712	10.167	6.809
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	35.833	24.000	14.500	9.712	10.167	6.809

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	16.633	8.317	13.500	6.750
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	16.633	8.317	13.500	6.750

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	0.067	0.033	0.067	0.033
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.067	0.033	0.067	0.033

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	41.267	24.000	17.900	10.410	13.200	7.677
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	41.267	24.000	17.900	10.410	13.200	7.677

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	18.600	9.300	14.567	7.283
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	18.600	9.300	14.567	7.283

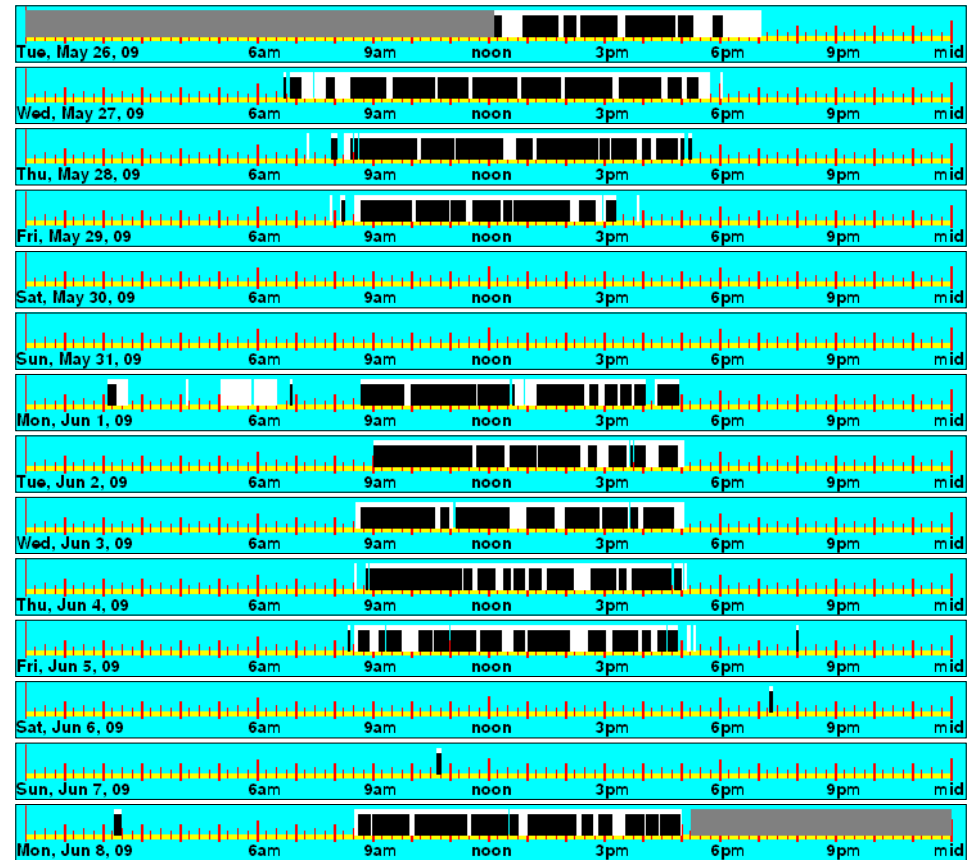
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	14.667	7.333	10.900	5.450
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	14.667	7.333	10.900	5.450

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	82.467	62.500	317.100	43.691	33.113	24.2%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	82.467	62.500	317.100	43.691	33.113	24.2%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.050	0.050	10.410	7.677	9.712	6.809	9.300	7.283	8.317	6.750	7.333	5.450	0.033	0.033
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.050	0.050	10.410	7.677	9.712	6.809	9.300	7.283	8.317	6.750	7.333	5.450	0.033	0.033

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	82.467	62.500	317.100	^ ^ ^ ^	43.691	33.113	24.2%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	82.467	62.500	317.100		43.691	33.113	24.2%



cafe

Area type: Open Space. Logger: 23353. Time delay 10 minutes. Noresco, Newton City Hall

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	35.767	24.000	22.167	14.874	17.733	11.899
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	35.767	24.000	22.167	14.874	17.733	11.899

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	26.683	13.342	19.967	9.983
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	26.683	13.342	19.967	9.983

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	41.217	24.000	24.350	14.179	18.950	11.034
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	41.217	24.000	24.350	14.179	18.950	11.034

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	27.133	13.567	18.833	9.417
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	27.133	13.567	18.833	9.417

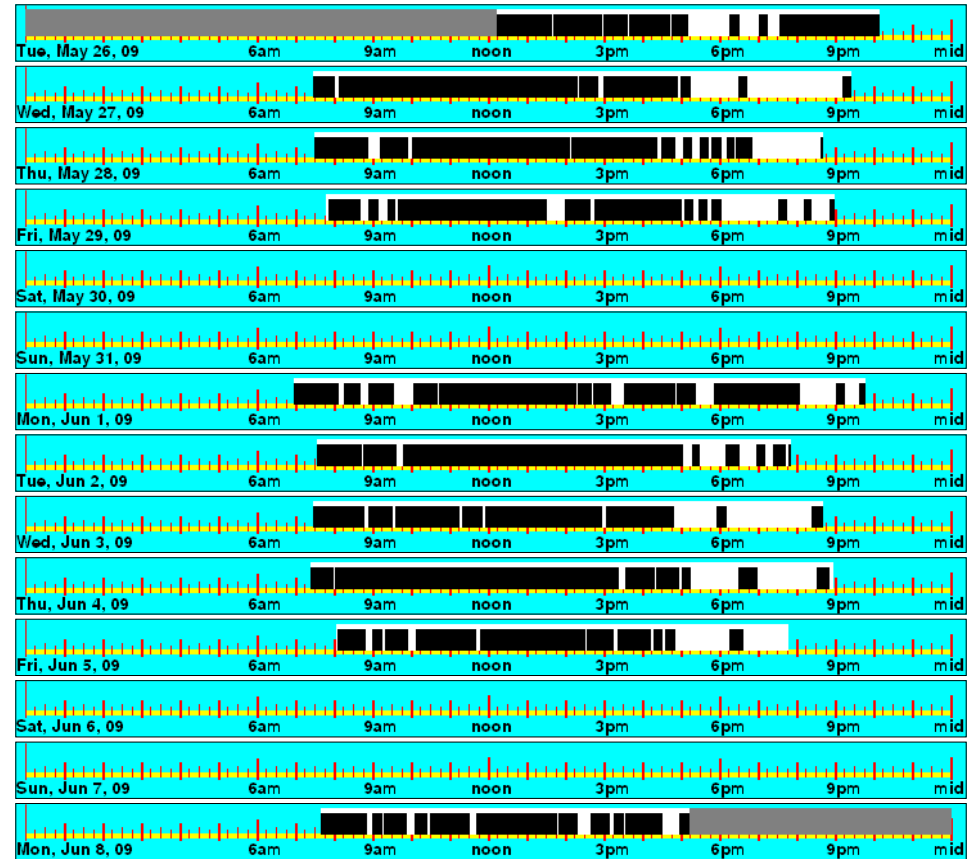
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	24.867	12.433	16.900	8.450
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	24.867	12.433	16.900	8.450

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	125.200	92.383	316.983	66.356	48.963	26.2%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	125.200	92.383	316.983	66.356	48.963	26.2%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	14.179	11.034	14.874	11.899	13.567	9.417	13.342	9.983	12.433	8.450	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	14.179	11.034	14.874	11.899	13.567	9.417	13.342	9.983	12.433	8.450	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	125.200	92.383	316.983	^ ^ ^ ^	66.356	48.963	26.2%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	125.200	92.383	316.983		66.356	48.963	26.2%



hall 2nd

Area type: Hallway. Logger: 24409. Time delay 10 minutes. Noresco, Newton City Hall

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	33.000	16.500	1.267	0.633
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	33.000	16.500	1.267	0.633

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	36.733	24.000	36.733	24.000	28.600	18.686
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	36.733	24.000	36.733	24.000	28.600	18.686

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	48.000	24.000	28.633	14.317
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	28.633	14.317

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	29.267	14.633	0.333	0.167
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	29.267	14.633	0.333	0.167

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	40.450	24.000	40.433	23.990	26.333	15.624
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	40.450	24.000	40.433	23.990	26.333	15.624

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	48.000	24.000	31.533	15.767
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	31.533	15.767

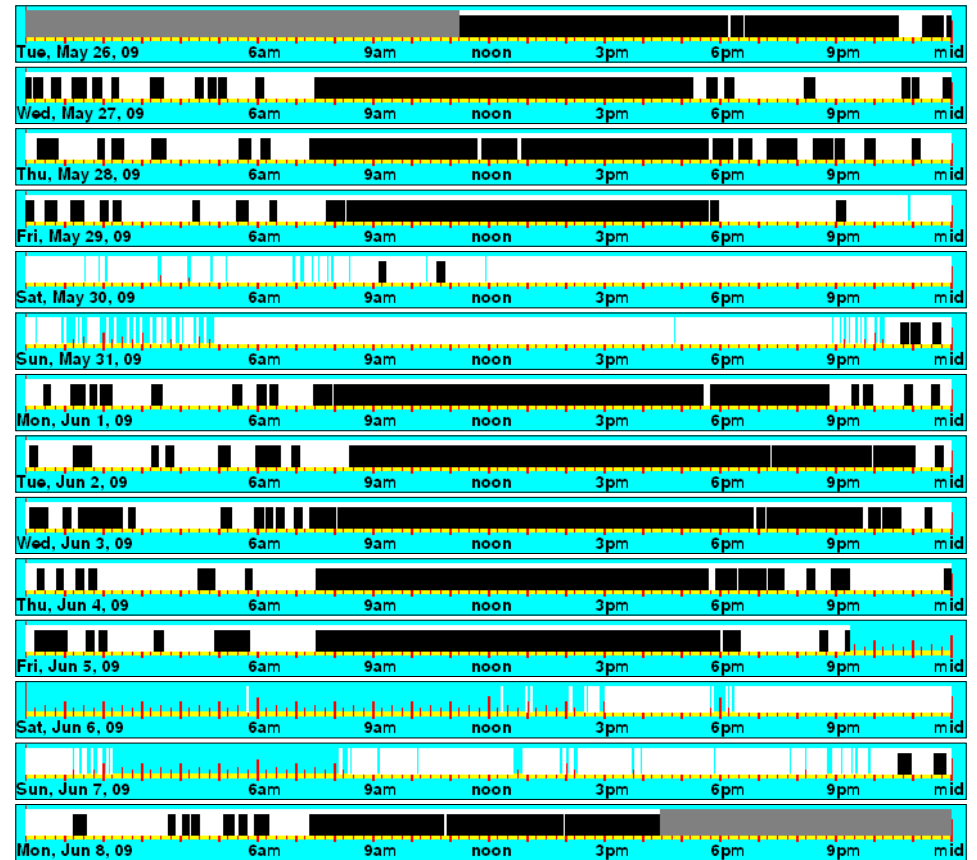
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	45.033	22.517	25.600	12.800
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	45.033	22.517	25.600	12.800

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	280.467	142.300	317.183	148.553	75.371	49.3%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	280.467	142.300	317.183	148.553	75.371	49.3%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	16.500	0.633	23.990	15.624	24.000	18.686	24.000	15.767	24.000	14.317	22.517	12.800	14.633	0.167
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	16.500	0.633	23.990	15.624	24.000	18.686	24.000	15.767	24.000	14.317	22.517	12.800	14.633	0.167

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	280.467	142.300	317.183	^ ^ ^ ^	148.553	75.371	49.3%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	280.467	142.300	317.183		148.553	75.371	49.3%



mens by 116a

Area type: Restroom. Logger: 24117. Time delay 10 minutes. Noresco, Newton City Hall

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	36.183	24.000	24.133	16.007	12.533	8.313
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	36.183	24.000	24.133	16.007	12.533	8.313

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	24.100	12.050	16.800	8.400
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	24.100	12.050	16.800	8.400

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	41.083	24.000	22.583	13.193	13.983	8.169
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	41.083	24.000	22.583	13.193	13.983	8.169

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	25.300	12.650	16.133	8.067
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	25.300	12.650	16.133	8.067

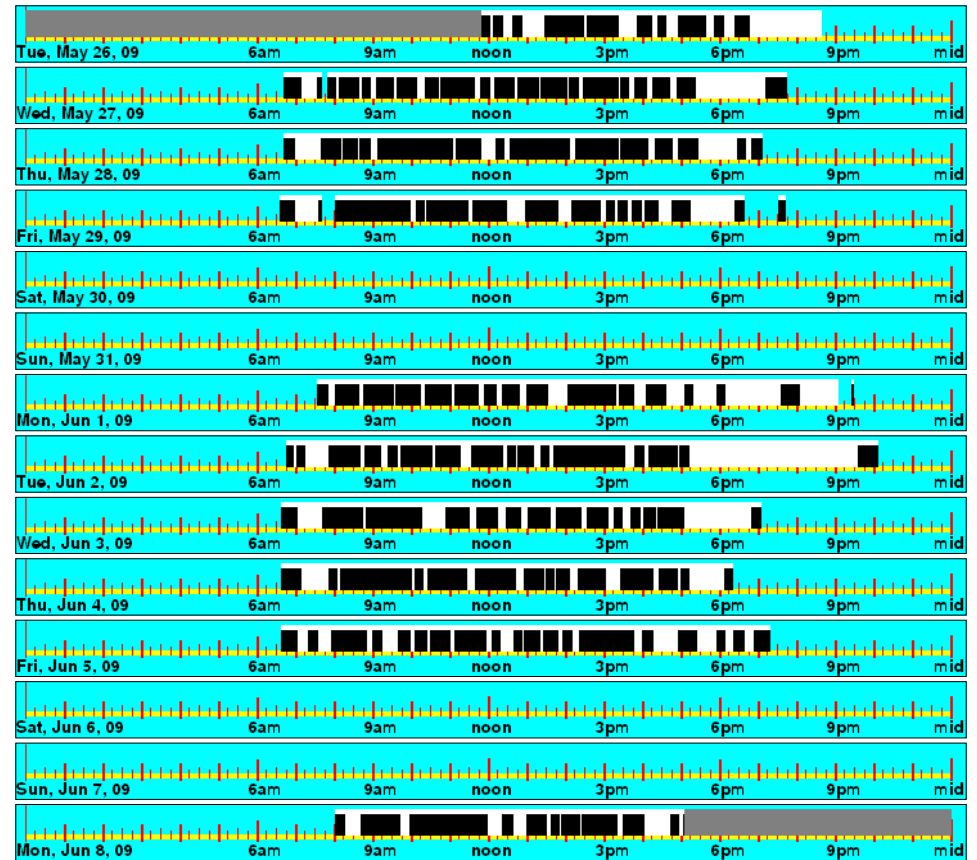
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	24.500	12.250	15.767	7.883
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	24.500	12.250	15.767	7.883

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	120.617	75.217	317.267	63.869	39.829	37.6%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	120.617	75.217	317.267	63.869	39.829	37.6%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	13.193	8.169	16.007	8.313	12.650	8.067	12.050	8.400	12.250	7.883	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	13.193	8.169	16.007	8.313	12.650	8.067	12.050	8.400	12.250	7.883	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	120.617	75.217	317.267	^ ^ ^ ^	63.869	39.829	37.6%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	120.617	75.217	317.267		63.869	39.829	37.6%



weights&measures

Area type: Open Space. Logger: 21965. Time delay 10 minutes. Noresco, Newton City Hall

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	45.817	24.000	14.683	7.692	7.350	3.850
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	45.817	24.000	14.683	7.692	7.350	3.850

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	15.500	7.750	10.267	5.133
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	15.500	7.750	10.267	5.133

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	16.000	8.000	8.500	4.250
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	16.000	8.000	8.500	4.250

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	11.233	5.617	7.733	3.867
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	11.233	5.617	7.733	3.867

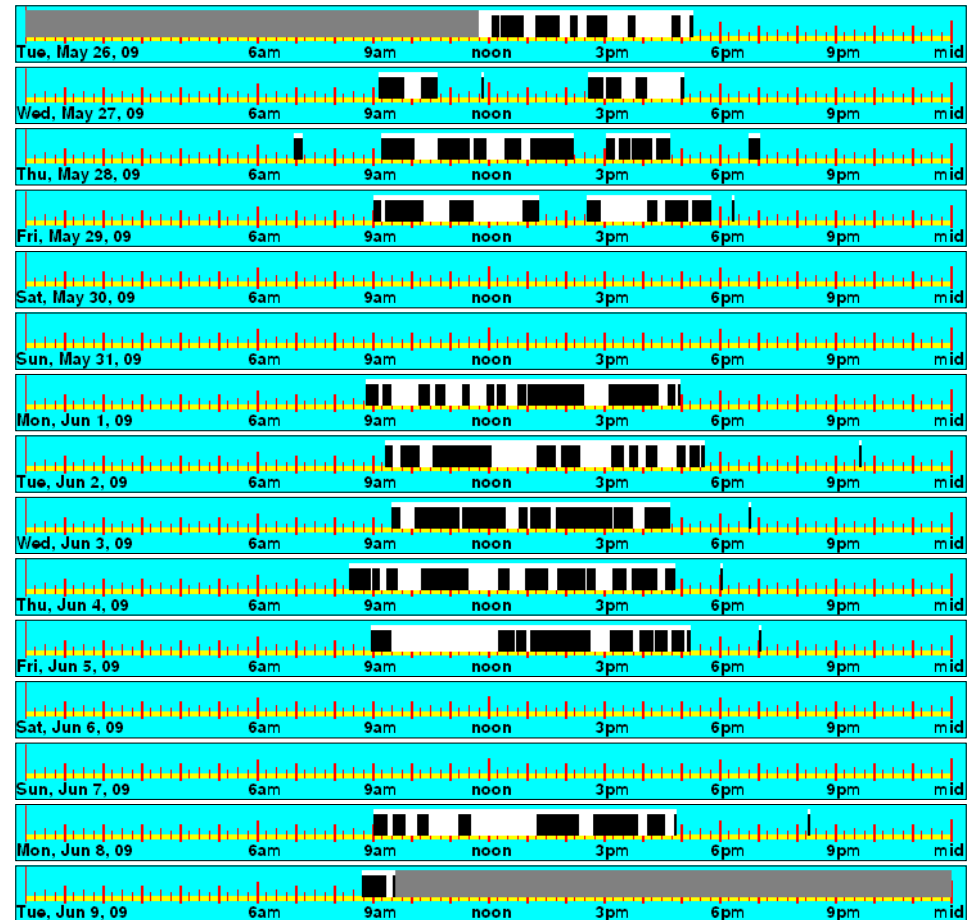
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	15.800	7.900	7.967	3.983
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	15.800	7.900	7.967	3.983

	Logged Totals			Normalized Totals		
Peak	73.217	41.817	333.817	36.848	21.045	42.9%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	73.217	41.817	333.817	36.848	21.045	42.9%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	8.000	4.250	7.692	3.850	5.617	3.867	7.750	5.133	7.900	3.983	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	8.000	4.250	7.692	3.850	5.617	3.867	7.750	5.133	7.900	3.983	0.000	0.000

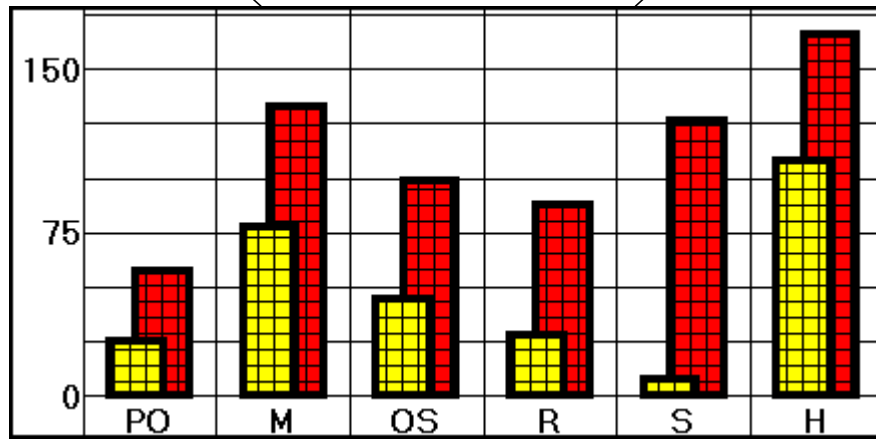
	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	73.217	41.817	333.817	^ ^ ^ ^	36.848	21.045	42.9%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	73.217	41.817	333.817		36.848	21.045	42.9%



Area Type Averages

Noresco, Newton Police buildings

Area Type Averages				Normalized Weekly Lights On					Normalized Weekly Occupied					
Area Type		Qty	Watts	Peak	Off	Shldr 1	Shldr 2	Total	Peak	Off	Shldr 1	Shldr 2	Total	% sav
Private Office	PO	6	173	56.87	0.00	0.00	0.00	56.87	24.70	0.00	0.00	0.00	24.70	56.57%
Meeting Rooms	M	1	180	132.32	0.00	0.00	0.00	132.32	77.56	0.00	0.00	0.00	77.56	41.38%
Open Space	OS	10	501	99.00	0.00	0.00	0.00	99.00	44.43	0.00	0.00	0.00	44.43	55.12%
Restroom	R	5	120	87.86	0.00	0.00	0.00	87.86	27.77	0.00	0.00	0.00	27.77	68.39%
Storage	S	1	480	126.49	0.00	0.00	0.00	126.49	7.56	0.00	0.00	0.00	7.56	94.02%
Hallway	H	5	243	165.56	0.00	0.00	0.00	165.56	107.55	0.00	0.00	0.00	107.55	35.04%
Building Average			8523	104.83			0.00	104.83	48.48			0.00	48.48	53.75%



Hours per Week for each Area Type

Data Logger Detail for Noresco, Newton Police buildings Page 1 of 1

All Loggers Listed			Hours Installed						Lights On					Occupied					
Logger	Room Location	Ty	Total	Peak	Off	Shldr 1	Shldr 2	Installed	Removed	Peak	Off	Shldr 1	Shldr 2	Total	Peak	Off	Shldr 1	Shldr 2	Total
20644	Annex- animal control	PO	337.30	337.30	0.00	0.00	0.00	5/26/09 1:43 PM	6/09/09 3:00 PM	74.20	0.00	0.00	0.00	74.20	42.43	0.00	0.00	0.00	42.43
21622	Annex- basement hall	H	331.25	331.25	0.00	0.00	0.00	5/26/09 1:42 PM	6/09/09 8:56 AM	307.27	0.00	0.00	0.00	307.27	68.33	0.00	0.00	0.00	68.33
21169	Annex- basement mens rm.	R	331.32	331.32	0.00	0.00	0.00	5/26/09 1:38 PM	6/09/09 8:56 AM	68.33	0.00	0.00	0.00	68.33	10.47	0.00	0.00	0.00	10.47
21071	Annex- lockers	OS	331.27	331.27	0.00	0.00	0.00	5/26/09 1:42 PM	6/09/09 8:57 AM	243.48	0.00	0.00	0.00	243.48	22.07	0.00	0.00	0.00	22.07
24836	Annex- main open area?	OS	331.33	331.33	0.00	0.00	0.00	5/26/09 1:33 PM	6/09/09 8:52 AM	225.38	0.00	0.00	0.00	225.38	146.05	0.00	0.00	0.00	146.05
22670	Annex- mens rm.	R	327.13	327.13	0.00	0.00	0.00	5/26/09 5:47 PM	6/09/09 8:54 AM	63.42	0.00	0.00	0.00	63.42	20.07	0.00	0.00	0.00	20.07
23580	Annex- storage area	S	331.25	331.25	0.00	0.00	0.00	5/26/09 1:44 PM	6/09/09 8:58 AM	249.40	0.00	0.00	0.00	249.40	14.90	0.00	0.00	0.00	14.90
21130	Garage- bay#1	OS	331.25	331.25	0.00	0.00	0.00	5/26/09 1:04 PM	6/09/09 8:18 AM	62.22	0.00	0.00	0.00	62.22	38.52	0.00	0.00	0.00	38.52
24781	Garage- bay#2	OS	331.25	331.25	0.00	0.00	0.00	5/26/09 1:18 PM	6/09/09 8:32 AM	21.70	0.00	0.00	0.00	21.70	18.27	0.00	0.00	0.00	18.27
23134	Garage- support office #1	PO	331.35	331.35	0.00	0.00	0.00	5/26/09 1:14 PM	6/09/09 8:34 AM	85.05	0.00	0.00	0.00	85.05	47.67	0.00	0.00	0.00	47.67
22123	Garage- support office #2	PO	331.35	331.35	0.00	0.00	0.00	5/26/09 1:14 PM	6/09/09 8:34 AM	71.90	0.00	0.00	0.00	71.90	17.58	0.00	0.00	0.00	17.58
23882	HQ- 1st fl. Hall	H	331.43	331.43	0.00	0.00	0.00	5/26/09 12:56 PM	6/09/09 8:21 AM	331.42	0.00	0.00	0.00	331.42	289.08	0.00	0.00	0.00	289.08
24366	HQ- 2nd fl. Hall	H	331.47	331.47	0.00	0.00	0.00	5/26/09 12:47 PM	6/09/09 8:14 AM	331.45	0.00	0.00	0.00	331.45	138.38	0.00	0.00	0.00	138.38
21406	HQ- 2nd fl. Mens	R	331.50	331.50	0.00	0.00	0.00	5/26/09 12:45 PM	6/09/09 8:14 AM	144.32	0.00	0.00	0.00	144.32	30.03	0.00	0.00	0.00	30.03
22024	HQ- basement hall	H	331.32	331.32	0.00	0.00	0.00	5/26/09 1:07 PM	6/09/09 8:25 AM	331.30	0.00	0.00	0.00	331.30	281.27	0.00	0.00	0.00	281.27
20958	HQ- boudreau	PO	331.43	331.43	0.00	0.00	0.00	5/26/09 12:50 PM	6/09/09 8:15 AM	68.53	0.00	0.00	0.00	68.53	36.37	0.00	0.00	0.00	36.37
21261	HQ- capt. dispatch hall	H	331.43	331.43	0.00	0.00	0.00	5/26/09 12:58 PM	6/09/09 8:23 AM	331.42	0.00	0.00	0.00	331.42	283.72	0.00	0.00	0.00	283.72
22295	HQ- detective bureau	OS	331.50	331.50	0.00	0.00	0.00	5/26/09 12:48 PM	6/09/09 8:17 AM	158.53	0.00	0.00	0.00	158.53	116.83	0.00	0.00	0.00	116.83
22831	HQ- gaurd rm. Lounge	M	331.42	331.42	0.00	0.00	0.00	5/26/09 12:56 PM	6/09/09 8:20 AM	261.03	0.00	0.00	0.00	261.03	153.00	0.00	0.00	0.00	153.00
24144	HQ- guard rm.	OS	331.43	331.43	0.00	0.00	0.00	5/26/09 12:54 PM	6/09/09 8:19 AM	275.92	0.00	0.00	0.00	275.92	173.05	0.00	0.00	0.00	173.05
23530	HQ- locker room mens	OS	331.32	331.32	0.00	0.00	0.00	5/26/09 1:09 PM	6/09/09 8:27 AM	331.00	0.00	0.00	0.00	331.00	105.30	0.00	0.00	0.00	105.30
24332	HQ- mcmain	PO	328.47	328.47	0.00	0.00	0.00	5/26/09 3:48 PM	6/09/09 8:15 AM	67.23	0.00	0.00	0.00	67.23	42.53	0.00	0.00	0.00	42.53
24126	HQ- mens room	R	331.30	331.30	0.00	0.00	0.00	5/26/09 1:10 PM	6/09/09 8:27 AM	331.15	0.00	0.00	0.00	331.15	146.95	0.00	0.00	0.00	146.95
24527	HQ- public mens	R	331.45	331.45	0.00	0.00	0.00	5/26/09 1:03 PM	6/09/09 8:29 AM	258.53	0.00	0.00	0.00	258.53	66.12	0.00	0.00	0.00	66.12
20828	HQ- research&details	OS	331.40	331.40	0.00	0.00	0.00	5/26/09 1:01 PM	6/09/09 8:24 AM	331.38	0.00	0.00	0.00	331.38	106.00	0.00	0.00	0.00	106.00
24616	HQ- sergeants office	PO	331.40	331.40	0.00	0.00	0.00	5/26/09 1:00 PM	6/09/09 8:23 AM	306.85	0.00	0.00	0.00	306.85	106.07	0.00	0.00	0.00	106.07
21752	HQ- tech. bureau	OS	331.42	331.42	0.00	0.00	0.00	5/26/09 12:57 PM	6/09/09 8:21 AM	135.27	0.00	0.00	0.00	135.27	109.77	0.00	0.00	0.00	109.77
22031	HQ- weight room	OS	331.28	331.28	0.00	0.00	0.00	5/26/09 1:11 PM	6/09/09 8:27 AM	167.67	0.00	0.00	0.00	167.67	40.50	0.00	0.00	0.00	40.50

Normalized Data Logger Detail for Noresco, Newton Police buildings Page 1 of 1

All Loggers Listed			Load	Normalized Weekly Hours of Use					Normalized Weekly Hours of Occupancy					
Logger	Room Location	Ty	Watts	Peak	Off	Shldr 1	Shldr 2	Total	Peak	Off	Shldr 1	Shldr 2	Total	% sav
20644	Annex- animal	PO	320	36.96	0.00	0.00	0.00	36.96	21.13	0.00	0.00	0.00	21.13	42.83%
21622	Annex-	H	480	155.84	0.00	0.00	0.00	155.84	34.66	0.00	0.00	0.00	34.66	77.76%
21169	Annex-	R	80	34.65	0.00	0.00	0.00	34.65	5.31	0.00	0.00	0.00	5.31	84.68%
21071	Annex- lockers	OS	320	123.48	0.00	0.00	0.00	123.48	11.19	0.00	0.00	0.00	11.19	90.94%
24836	Annex- main	OS	550	114.28	0.00	0.00	0.00	114.28	74.05	0.00	0.00	0.00	74.05	35.20%
22670	Annex- mens	R	160	32.57	0.00	0.00	0.00	32.57	10.31	0.00	0.00	0.00	10.31	68.35%
23580	Annex- storage	S	480	126.49	0.00	0.00	0.00	126.49	7.56	0.00	0.00	0.00	7.56	94.02%
21130	Garage- bay#1	OS	900	31.55	0.00	0.00	0.00	31.55	19.53	0.00	0.00	0.00	19.53	38.10%
24781	Garage- bay#2	OS	900	11.01	0.00	0.00	0.00	11.01	9.26	0.00	0.00	0.00	9.26	15.89%
23134	Garage-	PO	60	43.12	0.00	0.00	0.00	43.12	24.17	0.00	0.00	0.00	24.17	43.95%
22123	Garage-	PO	180	36.45	0.00	0.00	0.00	36.45	8.92	0.00	0.00	0.00	8.92	75.53%
23882	HQ- 1st fl. Hall	H	180	167.99	0.00	0.00	0.00	167.99	146.53	0.00	0.00	0.00	146.53	12.77%
24366	HQ- 2nd fl. Hall	H	120	167.99	0.00	0.00	0.00	167.99	70.14	0.00	0.00	0.00	70.14	58.25%
21406	HQ- 2nd fl.	R	45	73.14	0.00	0.00	0.00	73.14	15.22	0.00	0.00	0.00	15.22	79.19%
22024	HQ- basement	H	300	167.99	0.00	0.00	0.00	167.99	142.62	0.00	0.00	0.00	142.62	15.10%
20958	HQ- boudreau	PO	120	34.74	0.00	0.00	0.00	34.74	18.43	0.00	0.00	0.00	18.43	46.95%
21261	HQ- capt.	H	135	167.99	0.00	0.00	0.00	167.99	143.81	0.00	0.00	0.00	143.81	14.39%
22295	HQ- detective	OS	600	80.34	0.00	0.00	0.00	80.34	59.21	0.00	0.00	0.00	59.21	26.30%
22831	HQ- gaurd rm.	M	180	132.32	0.00	0.00	0.00	132.32	77.56	0.00	0.00	0.00	77.56	41.38%
24144	HQ- guard rm.	OS	360	139.86	0.00	0.00	0.00	139.86	87.72	0.00	0.00	0.00	87.72	37.28%
23530	HQ- locker	OS	360	167.84	0.00	0.00	0.00	167.84	53.39	0.00	0.00	0.00	53.39	68.19%
24332	HQ- mcmain	PO	120	34.39	0.00	0.00	0.00	34.39	21.75	0.00	0.00	0.00	21.75	36.75%
24126	HQ- mens room	R	180	167.92	0.00	0.00	0.00	167.92	74.52	0.00	0.00	0.00	74.52	55.62%
24527	HQ- public	R	135	131.04	0.00	0.00	0.00	131.04	33.51	0.00	0.00	0.00	33.51	74.43%
20828	HQ-	OS	300	167.99	0.00	0.00	0.00	167.99	53.74	0.00	0.00	0.00	53.74	68.01%
24616	HQ- sergeants	PO	240	155.55	0.00	0.00	0.00	155.55	53.77	0.00	0.00	0.00	53.77	65.43%
21752	HQ- tech.	OS	360	68.57	0.00	0.00	0.00	68.57	55.64	0.00	0.00	0.00	55.64	18.86%
22031	HQ- weight	OS	360	85.03	0.00	0.00	0.00	85.03	20.54	0.00	0.00	0.00	20.54	75.84%

Building Summary Totals for Noresco, Newton Police buildings Page 1 of 1

Building Summary Totals				Lights On KWHR					Occupied KWHR				
Area Type		Qty	Watts	Peak	Off	Shldr 1	Shldr 2	Total	Peak	Off	Shldr 1	Shldr 2	Total
Private Office	PO	6	1038	59	0	0	0	59	26	0	0	0	26
Meeting Rooms	M	1	180	24	0	0	0	24	14	0	0	0	14
Open Space	OS	10	5010	496	0	0	0	496	223	0	0	0	223
Restroom	R	5	600	53	0	0	0	53	17	0	0	0	17
Storage	S	1	480	61	0	0	0	61	4	0	0	0	4
Hallway	H	5	1215	201	0	0	0	201	131	0	0	0	131
Building Totals			8523	893			0	893	413			0	413

Annex- animal control

Area type: Private Office. Logger: 20644. Time delay 10 minutes. Noresco, Newton Police buildings

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	16.000	8.000	12.600	6.300
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	16.000	8.000	12.600	6.300

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	49.300	24.000	9.733	4.738	4.033	1.963
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	49.300	24.000	9.733	4.738	4.033	1.963

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	8.133	4.067	4.200	2.100
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	8.133	4.067	4.200	2.100

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	7.100	3.550	3.467	1.733
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	7.100	3.550	3.467	1.733

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	15.833	7.917	7.767	3.883
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	15.833	7.917	7.767	3.883

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	15.800	7.900	8.767	4.383
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	15.800	7.900	8.767	4.383

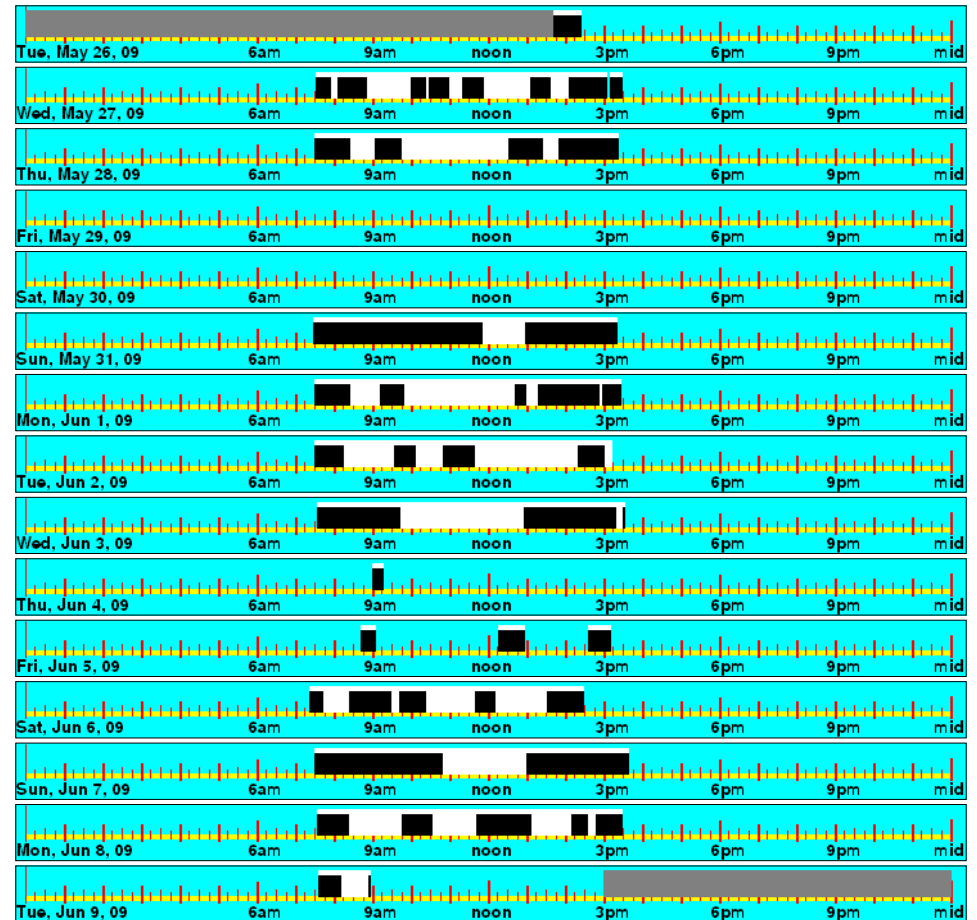
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	1.600	0.800	1.600	0.800
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	1.600	0.800	1.600	0.800

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	74.200	42.433	337.300	36.957	21.135	42.8%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	74.200	42.433	337.300	36.957	21.135	42.8%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	8.000	6.300	7.917	3.883	4.738	1.963	7.900	4.383	4.067	2.100	0.800	0.800	3.550	1.733
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	8.000	6.300	7.917	3.883	4.738	1.963	7.900	4.383	4.067	2.100	0.800	0.800	3.550	1.733

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	74.200	42.433	337.300	^ ^ ^ ^	36.957	21.135	42.8%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	74.200	42.433	337.300		36.957	21.135	42.8%



Annex- basement hall

Area type: Hallway. Logger: 21622. Time delay 10 minutes. Noresco, Newton Police buildings

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	44.883	22.442	7.333	3.667
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	44.883	22.442	7.333	3.667

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	43.250	24.000	43.233	23.991	11.050	6.132
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	43.250	24.000	43.233	23.991	11.050	6.132

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	48.000	24.000	10.933	5.467
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	10.933	5.467

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	48.000	24.000	6.033	3.017
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	6.033	3.017

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	27.150	13.575	6.683	3.342
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	27.150	13.575	6.683	3.342

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	48.000	24.000	13.317	6.658
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	13.317	6.658

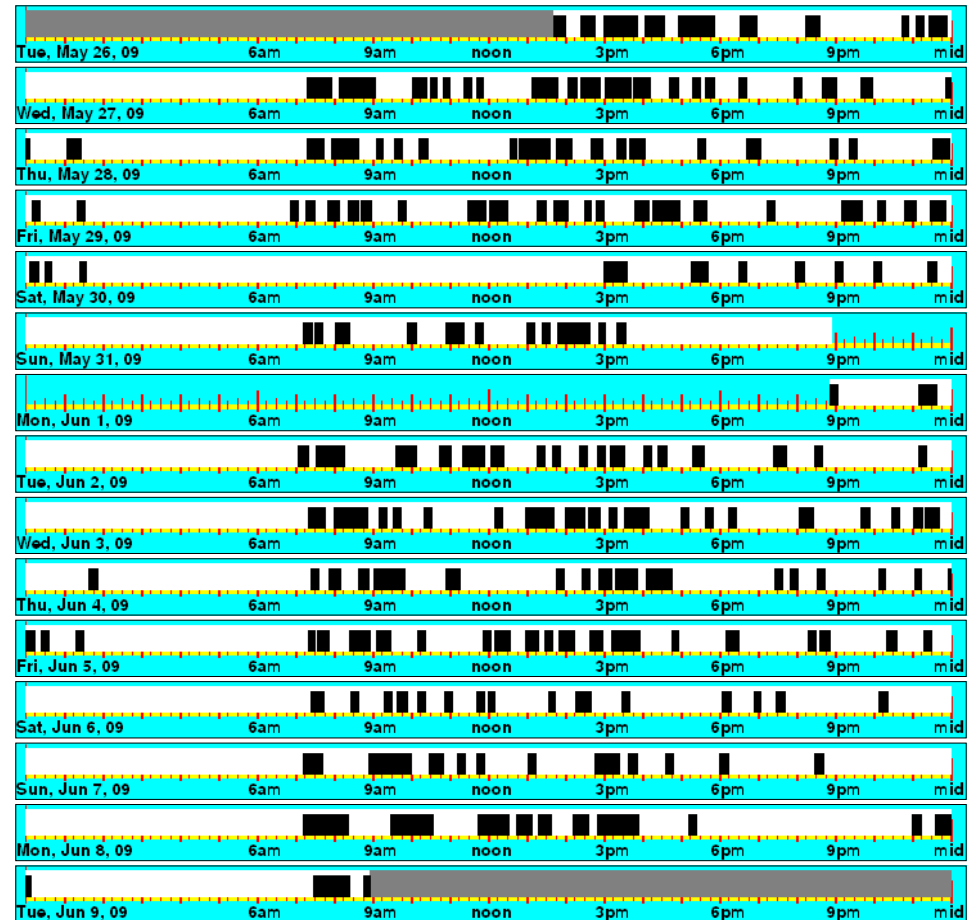
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	48.000	24.000	12.983	6.492
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	12.983	6.492

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	307.267	68.333	331.250	155.836	34.657	77.8%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	307.267	68.333	331.250	155.836	34.657	77.8%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	22.442	3.667	13.575	3.342	23.991	6.132	24.000	6.658	24.000	5.467	24.000	6.492	24.000	3.017
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	22.442	3.667	13.575	3.342	23.991	6.132	24.000	6.658	24.000	5.467	24.000	6.492	24.000	3.017

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	307.267	68.333	331.250	^ ^ ^ ^	155.836	34.657	77.8%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	307.267	68.333	331.250		155.836	34.657	77.8%



Annex- basement mens rm.

Area type: Restroom. Logger: 21169. Time delay 10 minutes. Noresco, Newton Police buildings

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	6.100	3.050	0.500	0.250
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	6.100	3.050	0.500	0.250

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	43.317	24.000	6.333	3.509	1.833	1.016
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	43.317	24.000	6.333	3.509	1.833	1.016

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	10.250	5.125	2.950	1.475
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	10.250	5.125	2.950	1.475

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	9.900	4.950	0.233	0.117
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	9.900	4.950	0.233	0.117

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	13.433	6.717	1.433	0.717
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	13.433	6.717	1.433	0.717

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	6.100	3.050	1.533	0.767
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	6.100	3.050	1.533	0.767

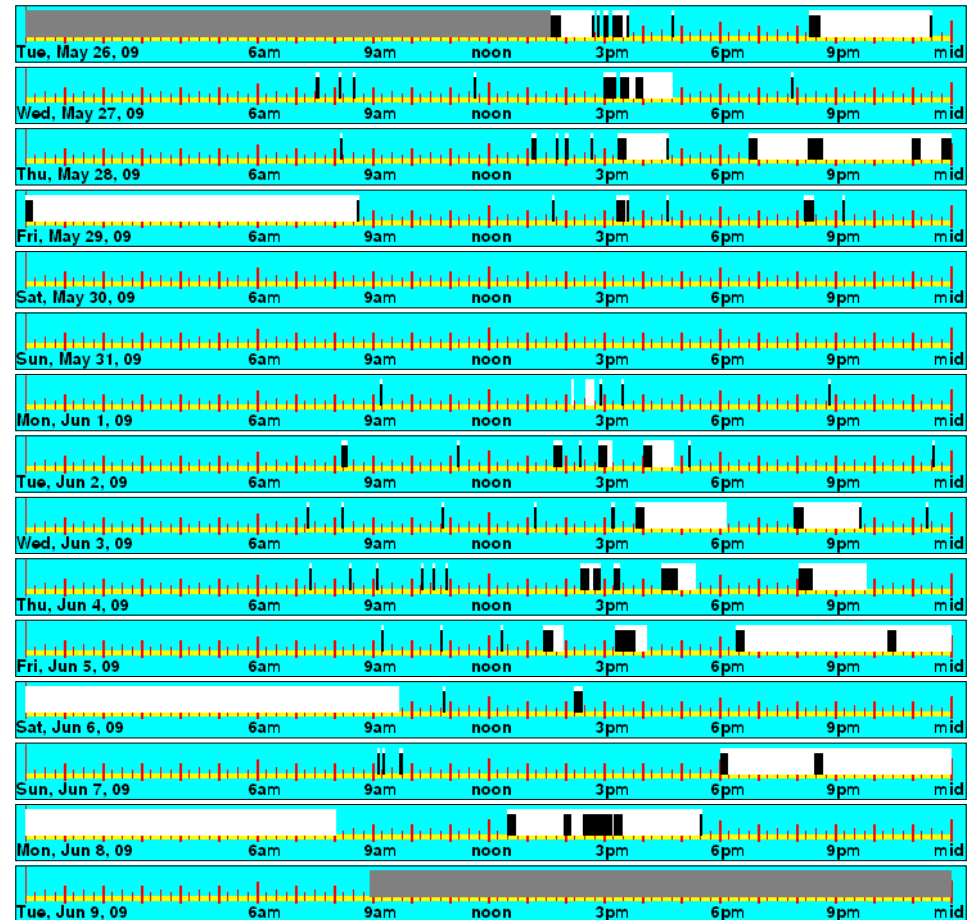
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	16.217	8.108	1.983	0.992
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	16.217	8.108	1.983	0.992

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	68.333	10.467	331.317	34.650	5.307	84.7%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	68.333	10.467	331.317	34.650	5.307	84.7%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	3.050	0.250	6.717	0.717	3.509	1.016	3.050	0.767	5.125	1.475	8.108	0.992	4.950	0.117
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	3.050	0.250	6.717	0.717	3.509	1.016	3.050	0.767	5.125	1.475	8.108	0.992	4.950	0.117

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	68.333	10.467	331.317	^ ^ ^ ^	34.650	5.307	84.7%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	68.333	10.467	331.317		34.650	5.307	84.7%



Annex- lockers

Area type: Open Space. Logger: 21071. Time delay 10 minutes. Noresco, Newton Police buildings

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	40.817	20.408	2.300	1.150
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	40.817	20.408	2.300	1.150

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	43.267	24.000	25.617	14.210	2.500	1.387
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	43.267	24.000	25.617	14.210	2.500	1.387

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	25.867	12.933	3.883	1.942
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	25.867	12.933	3.883	1.942

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	44.917	22.458	1.933	0.967
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	44.917	22.458	1.933	0.967

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	44.533	22.267	3.300	1.650
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	44.533	22.267	3.300	1.650

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	16.167	8.083	2.083	1.042
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	16.167	8.083	2.083	1.042

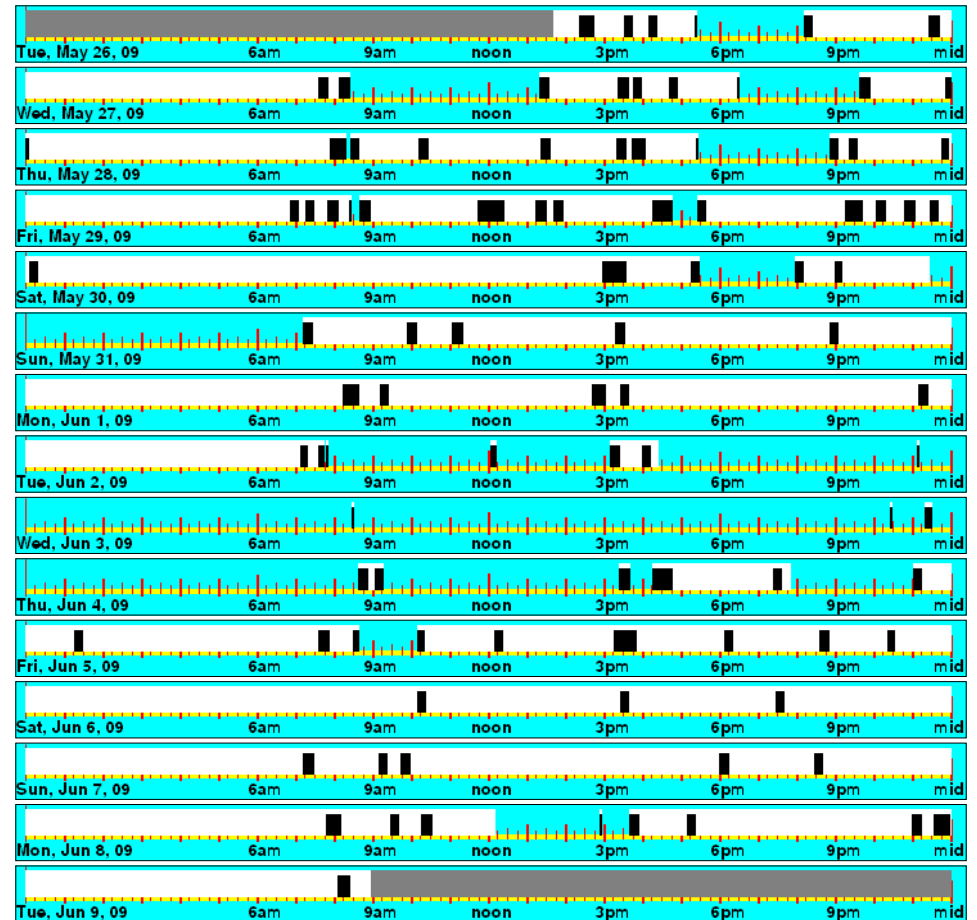
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	45.567	22.783	6.067	3.033
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	45.567	22.783	6.067	3.033

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	243.483	22.067	331.267	123.481	11.191	90.9%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	243.483	22.067	331.267	123.481	11.191	90.9%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	20.408	1.150	22.267	1.650	14.210	1.387	8.083	1.042	12.933	1.942	22.783	3.033	22.458	0.967
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	20.408	1.150	22.267	1.650	14.210	1.387	8.083	1.042	12.933	1.942	22.783	3.033	22.458	0.967

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	243.483	22.067	331.267	^ ^ ^ ^	123.481	11.191	90.9%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	243.483	22.067	331.267		123.481	11.191	90.9%



Annex- main open area?

Area type: Open Space. Logger: 24836. Time delay 10 minutes. Noresco, Newton Police buildings

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	4.200	2.100	3.400	1.700
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	4.200	2.100	3.400	1.700

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	43.333	24.000	34.283	18.988	24.217	13.412
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	43.333	24.000	34.283	18.988	24.217	13.412

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	40.467	20.233	29.300	14.650
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	40.467	20.233	29.300	14.650

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	25.267	12.633	2.100	1.050
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	25.267	12.633	2.100	1.050

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	33.800	16.900	28.500	14.250
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	33.800	16.900	28.500	14.250

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	39.367	19.683	28.333	14.167
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	39.367	19.683	28.333	14.167

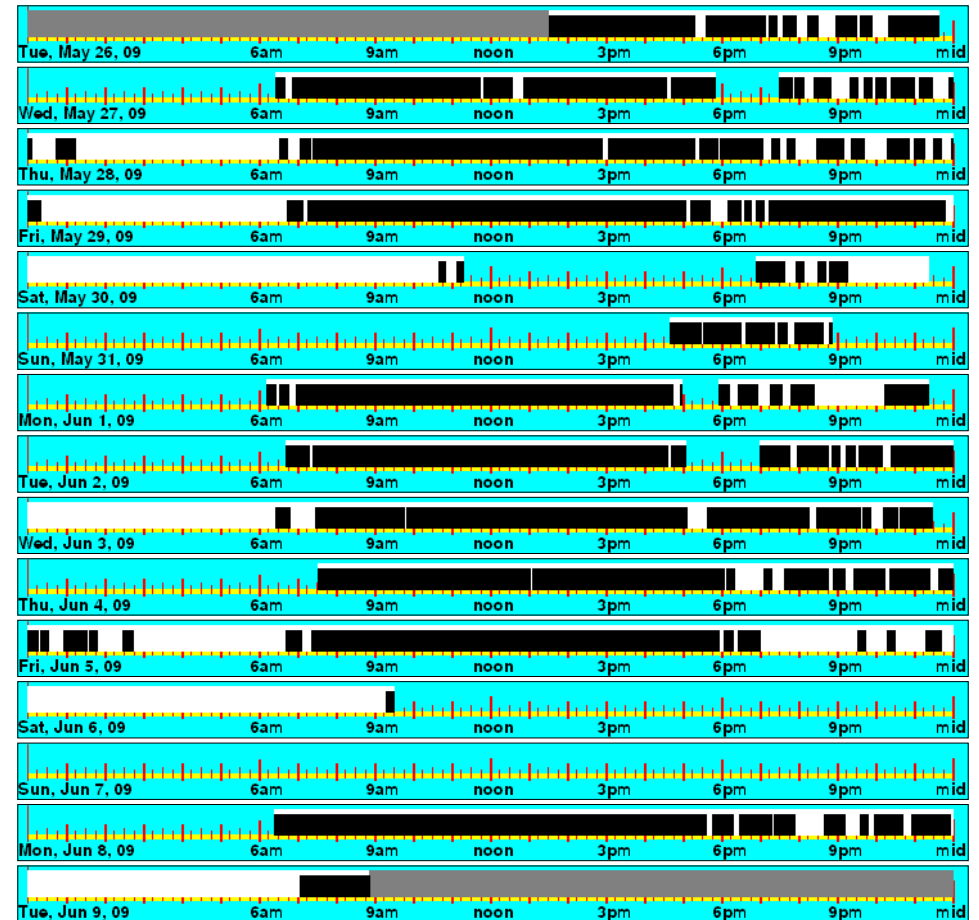
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	48.000	24.000	30.200	15.100
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	30.200	15.100

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	225.383	146.050	331.333	114.279	74.054	35.2%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	225.383	146.050	331.333	114.279	74.054	35.2%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	2.100	1.700	16.900	14.250	18.988	13.412	19.683	14.167	20.233	14.650	24.000	15.100	12.633	1.050
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	2.100	1.700	16.900	14.250	18.988	13.412	19.683	14.167	20.233	14.650	24.000	15.100	12.633	1.050

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	225.383	146.050	331.333	^ ^ ^ ^	114.279	74.054	35.2%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	225.383	146.050	331.333		114.279	74.054	35.2%



Annex- mens rm.

Area type: Restroom. Logger: 22670. Time delay 10 minutes. Noresco, Newton Police buildings

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	9.783	4.892	1.500	0.750
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	9.783	4.892	1.500	0.750

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	39.133	24.000	1.017	0.624	0.467	0.286
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	39.133	24.000	1.017	0.624	0.467	0.286

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	1.633	0.817	0.333	0.167
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	1.633	0.817	0.333	0.167

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	24.067	12.033	10.467	5.233
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	24.067	12.033	10.467	5.233

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	3.833	1.917	2.367	1.183
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	3.833	1.917	2.367	1.183

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	14.650	7.325	2.467	1.233
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	14.650	7.325	2.467	1.233

Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	8.433	4.217	2.467	1.233
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	8.433	4.217	2.467	1.233

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	63.417	20.067	327.133	32.568	10.305	68.4%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	63.417	20.067	327.133	32.568	10.305	68.4%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	4.892	0.750	1.917	1.183	0.624	0.286	7.325	1.233	0.817	0.167	4.217	1.233	12.033	5.233
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	4.892	0.750	1.917	1.183	0.624	0.286	7.325	1.233	0.817	0.167	4.217	1.233	12.033	5.233

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	63.417	20.067	327.133	^ ^ ^ ^	32.568	10.305	68.4%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	63.417	20.067	327.133		32.568	10.305	68.4%



Annex- storage area

Area type: Storage. Logger: 23580. Time delay 10 minutes. Noresco, Newton Police buildings

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	24.000	12.000	0.567	0.283
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	24.000	12.000	0.567	0.283

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	43.250	24.000	34.283	19.024	3.000	1.665
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	43.250	24.000	34.283	19.024	3.000	1.665

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	48.000	24.000	3.133	1.567
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	3.133	1.567

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	30.717	15.358	1.767	0.883
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	30.717	15.358	1.767	0.883

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	24.000	12.000	0.433	0.217
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	24.000	12.000	0.433	0.217

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	48.000	24.000	2.783	1.392
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	2.783	1.392

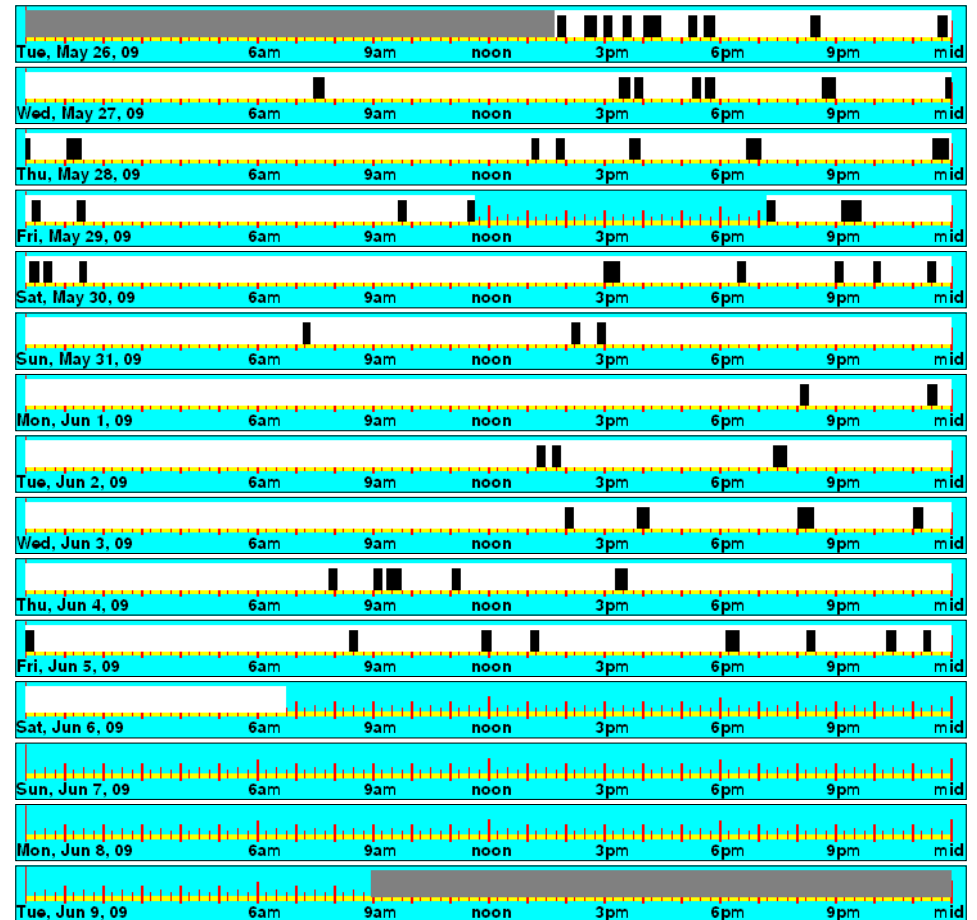
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	40.400	20.200	3.217	1.608
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	40.400	20.200	3.217	1.608

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	249.400	14.900	331.250	126.488	7.557	94.0%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	249.400	14.900	331.250	126.488	7.557	94.0%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	12.000	0.283	12.000	0.217	19.024	1.665	24.000	1.392	24.000	1.567	20.200	1.608	15.358	0.883
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	12.000	0.283	12.000	0.217	19.024	1.665	24.000	1.392	24.000	1.567	20.200	1.608	15.358	0.883

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	249.400	14.900	331.250	^ ^ ^ ^	126.488	7.557	94.0%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	249.400	14.900	331.250		126.488	7.557	94.0%



Garage- bay#1

Area type: Open Space. Logger: 21130. Time delay 10 minutes. Noresco, Newton Police buildings

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	1.500	0.750	0.233	0.117
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	1.500	0.750	0.233	0.117

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	43.250	24.000	13.917	7.723	11.017	6.113
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	43.250	24.000	13.917	7.723	11.017	6.113

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	6.617	3.308	1.700	0.850
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	6.617	3.308	1.700	0.850

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	12.033	6.017	5.467	2.733
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	12.033	6.017	5.467	2.733

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	11.350	5.675	6.767	3.383
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	11.350	5.675	6.767	3.383

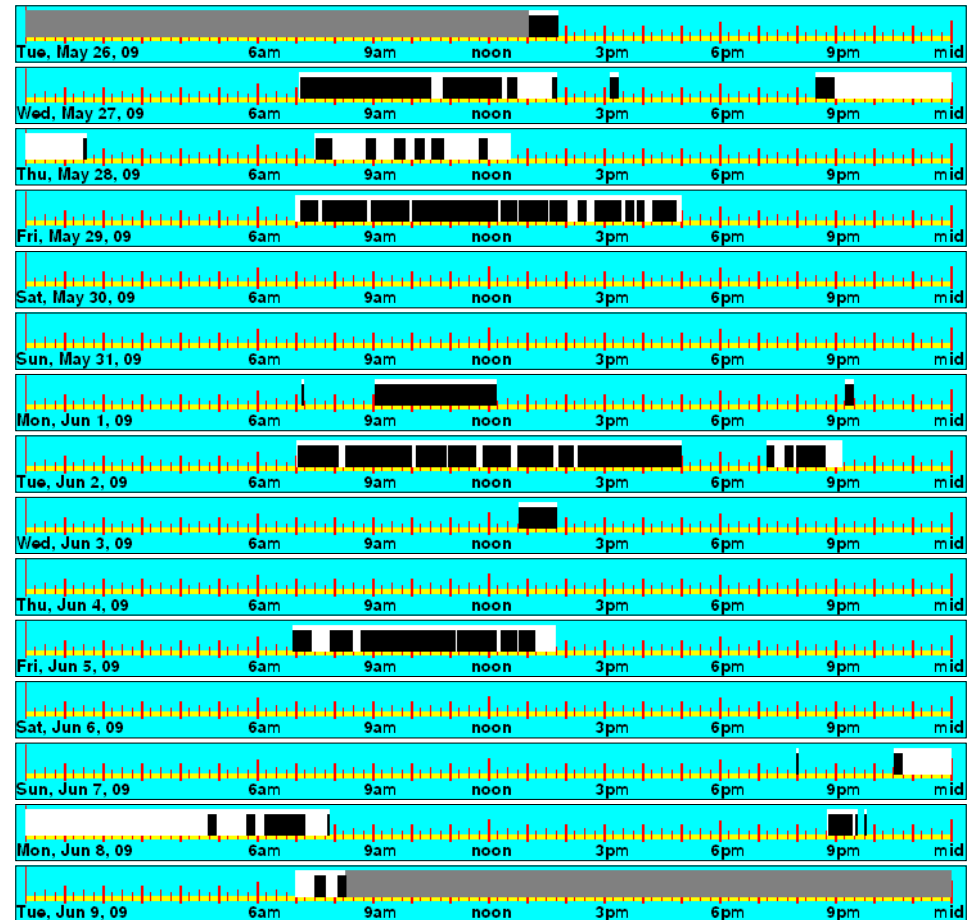
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	16.800	8.400	13.333	6.667
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	16.800	8.400	13.333	6.667

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	62.217	38.517	331.250	31.554	19.534	38.1%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	62.217	38.517	331.250	31.554	19.534	38.1%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.750	0.117	6.017	2.733	7.723	6.113	5.675	3.383	3.308	0.850	8.400	6.667	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.750	0.117	6.017	2.733	7.723	6.113	5.675	3.383	3.308	0.850	8.400	6.667	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	62.217	38.517	331.250	^ ^ ^ ^	31.554	19.534	38.1%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	62.217	38.517	331.250		31.554	19.534	38.1%



Garage- bay#2

Area type: Open Space. Logger: 24781. Time delay 10 minutes. Noresco, Newton Police buildings

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	43.250	24.000	1.433	0.795	1.300	0.721
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	43.250	24.000	1.433	0.795	1.300	0.721

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	0.333	0.167	0.333	0.167
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.333	0.167	0.333	0.167

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	8.767	4.383	6.667	3.333
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	8.767	4.383	6.667	3.333

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	5.867	2.933	5.100	2.550
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	5.867	2.933	5.100	2.550

Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	5.300	2.650	4.867	2.433
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	5.300	2.650	4.867	2.433

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	21.700	18.267	331.250	11.006	9.264	15.8%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	21.700	18.267	331.250	11.006	9.264	15.8%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	4.383	3.333	0.795	0.721	2.933	2.550	0.167	0.167	2.650	2.433	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	4.383	3.333	0.795	0.721	2.933	2.550	0.167	0.167	2.650	2.433	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	21.700	18.267	331.250	^ ^ ^ ^	11.006	9.264	15.8%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	21.700	18.267	331.250		11.006	9.264	15.8%



Garage- support office #1

Area type: Private Office. Logger: 23134. Time delay 10 minutes. Noresco, Newton Police buildings

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	43.350	24.000	13.183	7.299	7.300	4.042
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	43.350	24.000	13.183	7.299	7.300	4.042

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	17.267	8.633	7.933	3.967
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	17.267	8.633	7.933	3.967

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	0.767	0.383	0.433	0.217
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.767	0.383	0.433	0.217

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	20.533	10.267	13.533	6.767
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	20.533	10.267	13.533	6.767

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	16.533	8.267	8.667	4.333
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	16.533	8.267	8.667	4.333

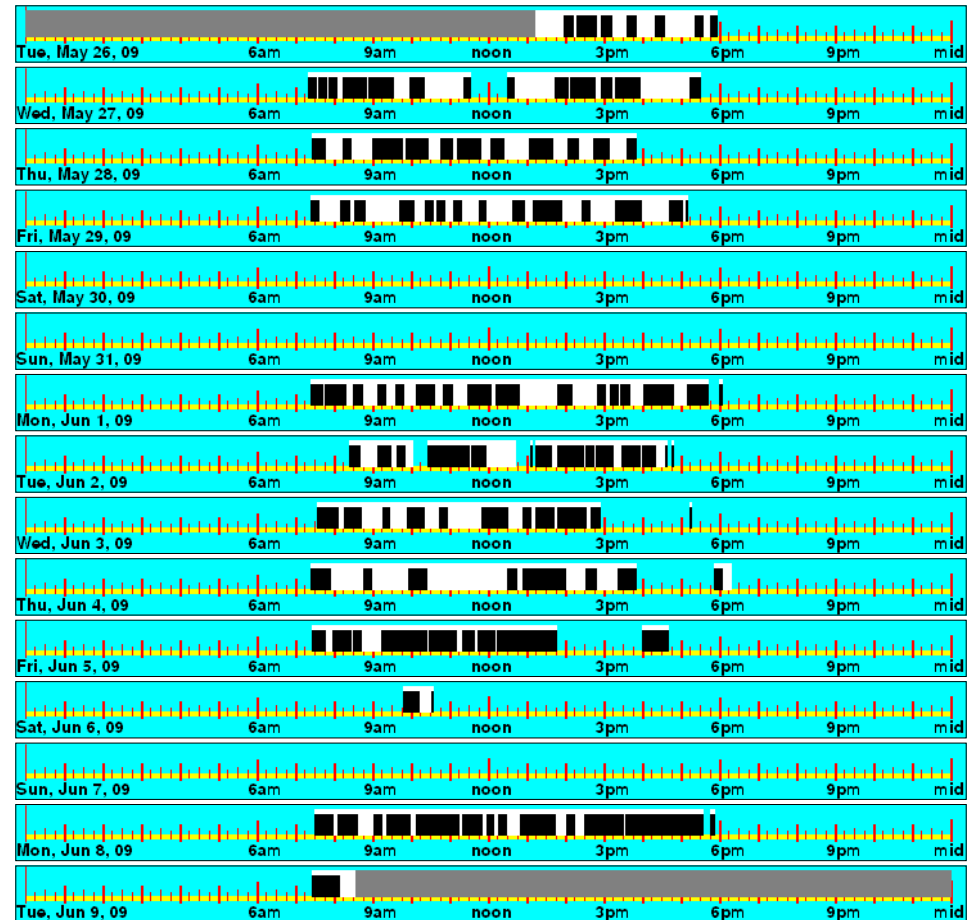
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	16.767	8.383	9.800	4.900
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	16.767	8.383	9.800	4.900

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	85.050	47.667	331.350	43.122	24.168	44.0%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	85.050	47.667	331.350	43.122	24.168	44.0%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	10.267	6.767	7.299	4.042	8.267	4.333	8.633	3.967	8.383	4.900	0.383	0.217
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	10.267	6.767	7.299	4.042	8.267	4.333	8.633	3.967	8.383	4.900	0.383	0.217

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	85.050	47.667	331.350	^ ^ ^ ^	43.122	24.168	44.0%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	85.050	47.667	331.350		43.122	24.168	44.0%



Garage- support office #2

Area type: Private Office. Logger: 22123. Time delay 10 minutes. Noresco, Newton Police buildings

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	43.350	24.000	7.817	4.328	1.567	0.867
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	43.350	24.000	7.817	4.328	1.567	0.867

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	22.083	11.042	3.300	1.650
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	22.083	11.042	3.300	1.650

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	0.767	0.383	0.200	0.100
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.767	0.383	0.200	0.100

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	11.667	5.833	4.967	2.483
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	11.667	5.833	4.967	2.483

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	11.800	5.900	2.967	1.483
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	11.800	5.900	2.967	1.483

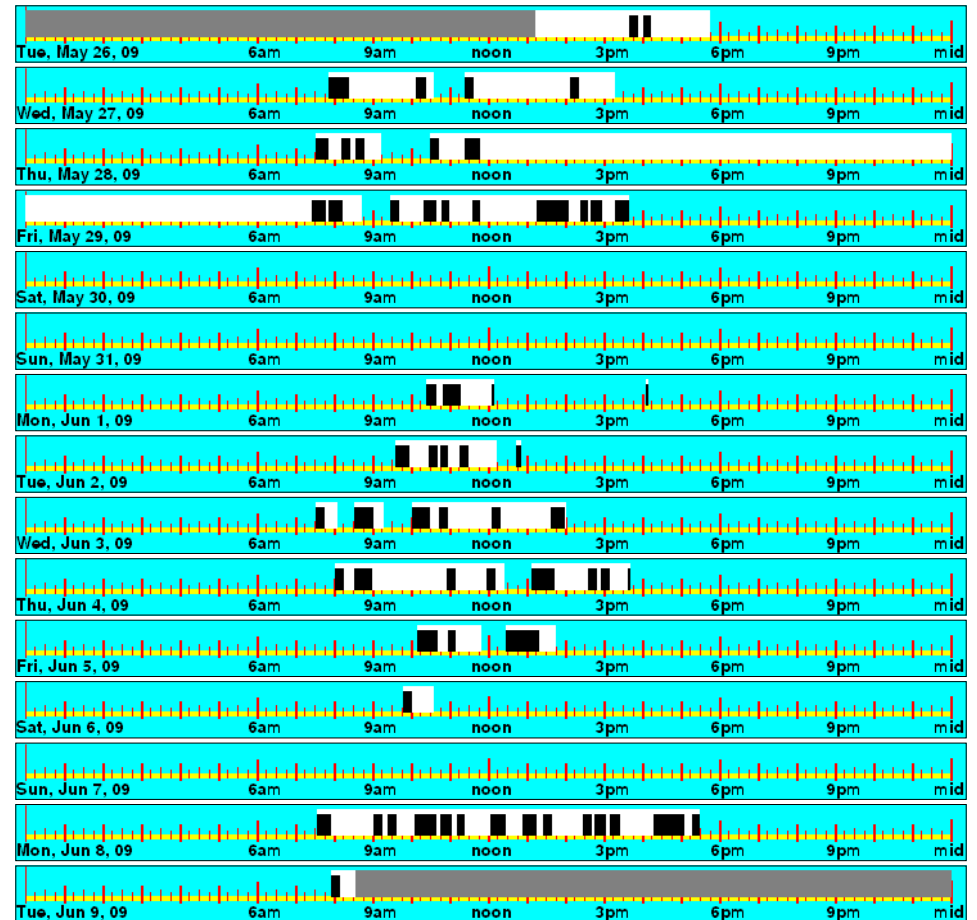
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	17.767	8.883	4.583	2.292
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	17.767	8.883	4.583	2.292

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	71.900	17.583	331.350	36.455	8.915	75.5%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	71.900	17.583	331.350	36.455	8.915	75.5%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	5.833	2.483	4.328	0.867	5.900	1.483	11.042	1.650	8.883	2.292	0.383	0.100
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	5.833	2.483	4.328	0.867	5.900	1.483	11.042	1.650	8.883	2.292	0.383	0.100

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	71.900	17.583	331.350	^ ^ ^ ^	36.455	8.915	75.5%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	71.900	17.583	331.350		36.455	8.915	75.5%



HQ- 1st fl. Hall

Area type: Hallway. Logger: 23882. Time delay 10 minutes. Noresco, Newton Police buildings

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	48.000	24.000	41.833	20.917
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	41.833	20.917

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	43.433	24.000	43.417	23.991	37.317	20.620
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	43.433	24.000	43.417	23.991	37.317	20.620

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	48.000	24.000	43.200	21.600
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	43.200	21.600

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	48.000	24.000	42.700	21.350
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	42.700	21.350

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	48.000	24.000	40.883	20.442
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	40.883	20.442

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	48.000	24.000	40.150	20.075
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	40.150	20.075

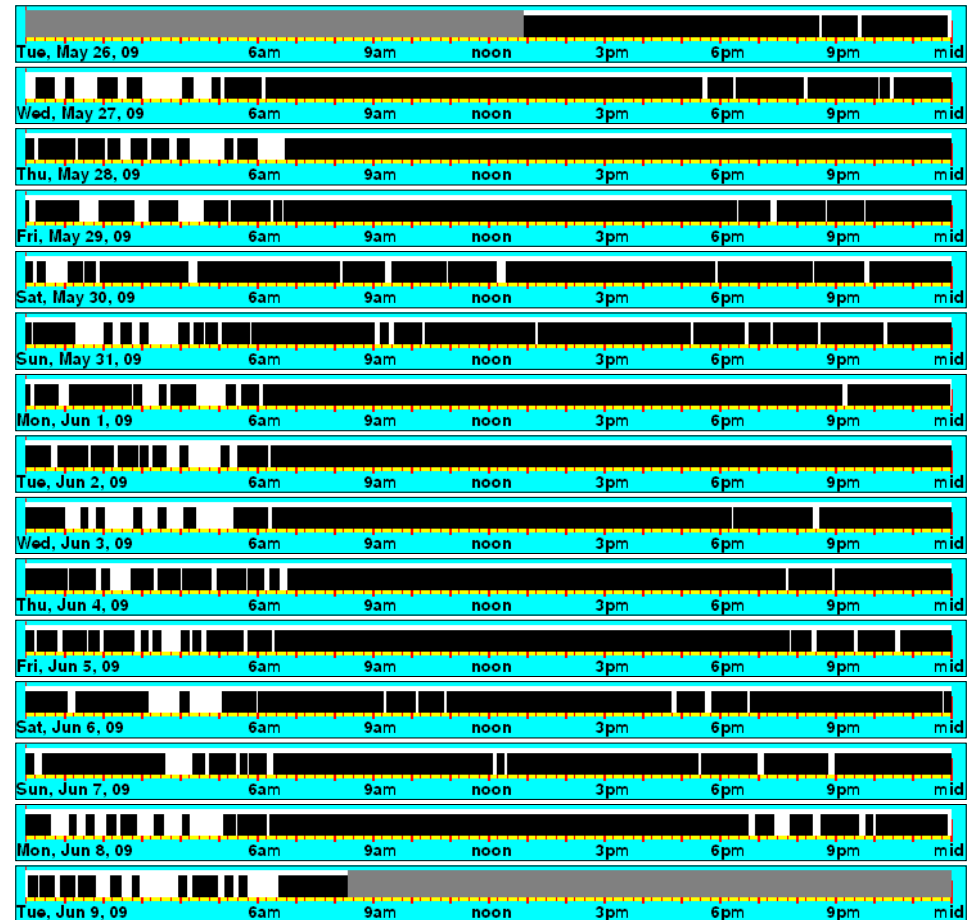
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	48.000	24.000	43.000	21.500
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	43.000	21.500

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	331.417	289.083	331.433	167.992	146.533	12.8%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	331.417	289.083	331.433	167.992	146.533	12.8%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	24.000	20.917	24.000	20.442	23.991	20.620	24.000	20.075	24.000	21.600	24.000	21.500	24.000	21.350
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	24.000	20.917	24.000	20.442	23.991	20.620	24.000	20.075	24.000	21.600	24.000	21.500	24.000	21.350

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	331.417	289.083	331.433	^ ^ ^ ^	167.992	146.533	12.8%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	331.417	289.083	331.433		167.992	146.533	12.8%



HQ- 2nd fl. Hall

Area type: Hallway. Logger: 24366. Time delay 10 minutes. Noresco, Newton Police buildings

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	48.000	24.000	8.333	4.167
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	8.333	4.167

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	43.467	24.000	43.450	23.991	20.650	11.402
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	43.467	24.000	43.450	23.991	20.650	11.402

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	48.000	24.000	23.500	11.750
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	23.500	11.750

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	48.000	24.000	8.300	4.150
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	8.300	4.150

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	48.000	24.000	27.700	13.850
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	27.700	13.850

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	48.000	24.000	23.833	11.917
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	23.833	11.917

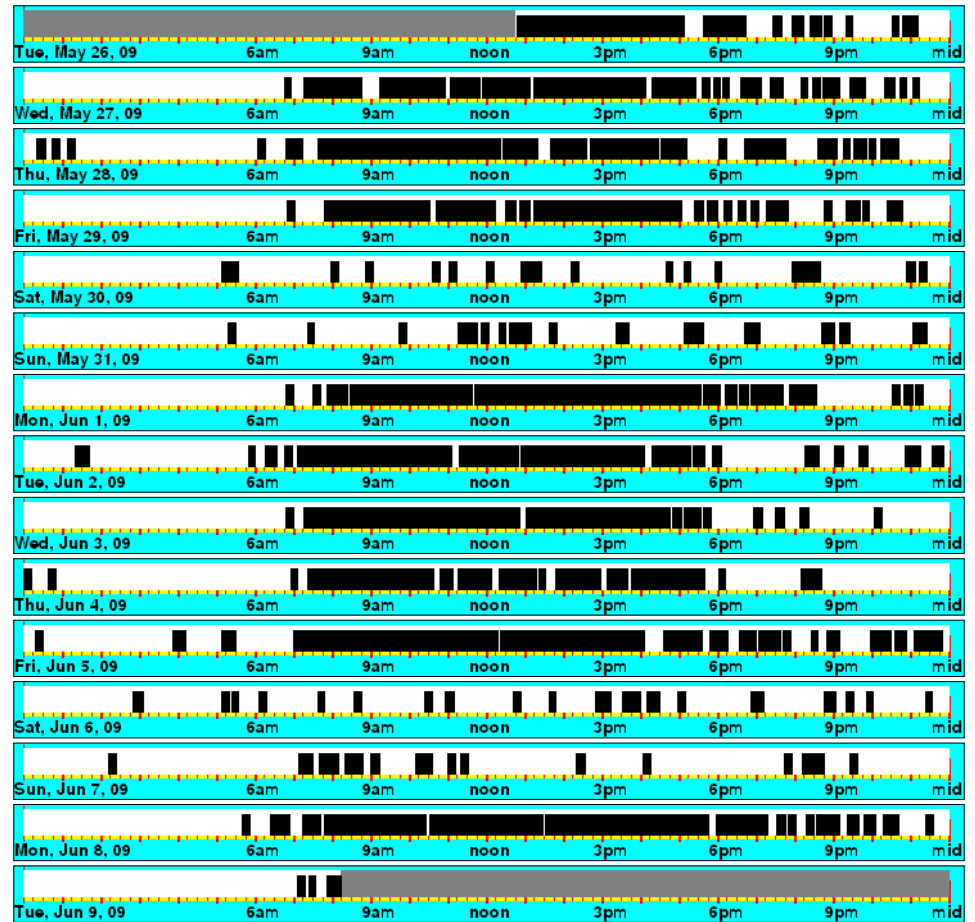
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	48.000	24.000	26.067	13.033
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	26.067	13.033

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	331.450	138.383	331.467	167.992	70.138	58.2%
Off Peak	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	331.450	138.383	331.467	167.992	70.138	58.2%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	24.000	4.167	24.000	13.850	23.991	11.402	24.000	11.917	24.000	11.750	24.000	13.033	24.000	4.150
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	24.000	4.167	24.000	13.850	23.991	11.402	24.000	11.917	24.000	11.750	24.000	13.033	24.000	4.150

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	331.450	138.383	331.467	^ ^ ^ ^	167.992	70.138	58.2%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	331.450	138.383	331.467		167.992	70.138	58.2%



HQ- 2nd fl. Mens

Area type: Restroom. Logger: 21406. Time delay 10 minutes. Noresco, Newton Police buildings

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	30.483	15.242	2.633	1.317
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	30.483	15.242	2.633	1.317

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	43.500	24.000	18.883	10.418	4.700	2.593
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	43.500	24.000	18.883	10.418	4.700	2.593

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	13.333	6.667	3.833	1.917
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	13.333	6.667	3.833	1.917

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	37.000	18.500	3.467	1.733
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	37.000	18.500	3.467	1.733

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	16.117	8.058	5.933	2.967
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	16.117	8.058	5.933	2.967

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	15.283	7.642	4.567	2.283
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	15.283	7.642	4.567	2.283

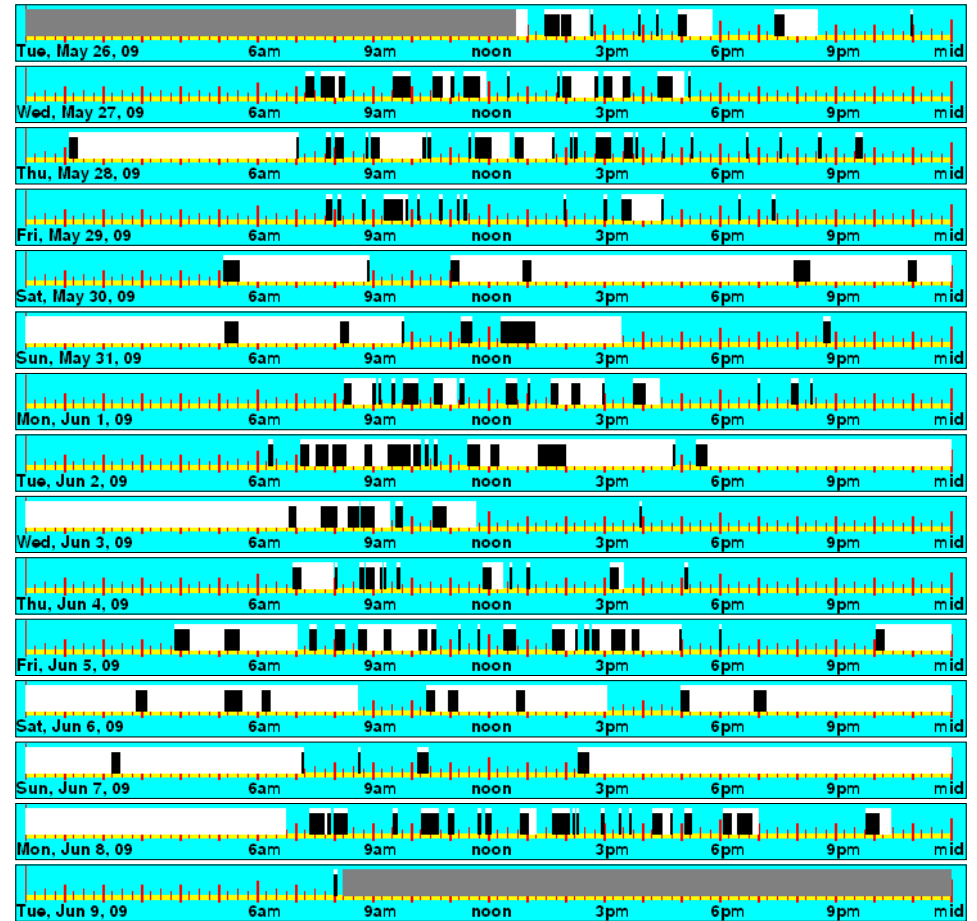
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	13.217	6.608	4.900	2.450
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	13.217	6.608	4.900	2.450

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	144.317	30.033	331.500	73.138	15.221	79.2%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	144.317	30.033	331.500	73.138	15.221	79.2%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	15.242	1.317	8.058	2.967	10.418	2.593	7.642	2.283	6.667	1.917	6.608	2.450	18.500	1.733
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	15.242	1.317	8.058	2.967	10.418	2.593	7.642	2.283	6.667	1.917	6.608	2.450	18.500	1.733

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	144.317	30.033	331.500	^ ^ ^ ^	73.138	15.221	79.2%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	144.317	30.033	331.500		73.138	15.221	79.2%



HQ- basement hall

Area type: Hallway. Logger: 22024. Time delay 10 minutes. Noresco, Newton Police buildings

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	48.000	24.000	40.050	20.025
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	40.050	20.025

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	43.317	24.000	43.300	23.991	36.383	20.159
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	43.317	24.000	43.300	23.991	36.383	20.159

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	48.000	24.000	42.950	21.475
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	42.950	21.475

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	48.000	24.000	38.867	19.433
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	38.867	19.433

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	48.000	24.000	41.167	20.583
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	41.167	20.583

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	48.000	24.000	39.933	19.967
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	39.933	19.967

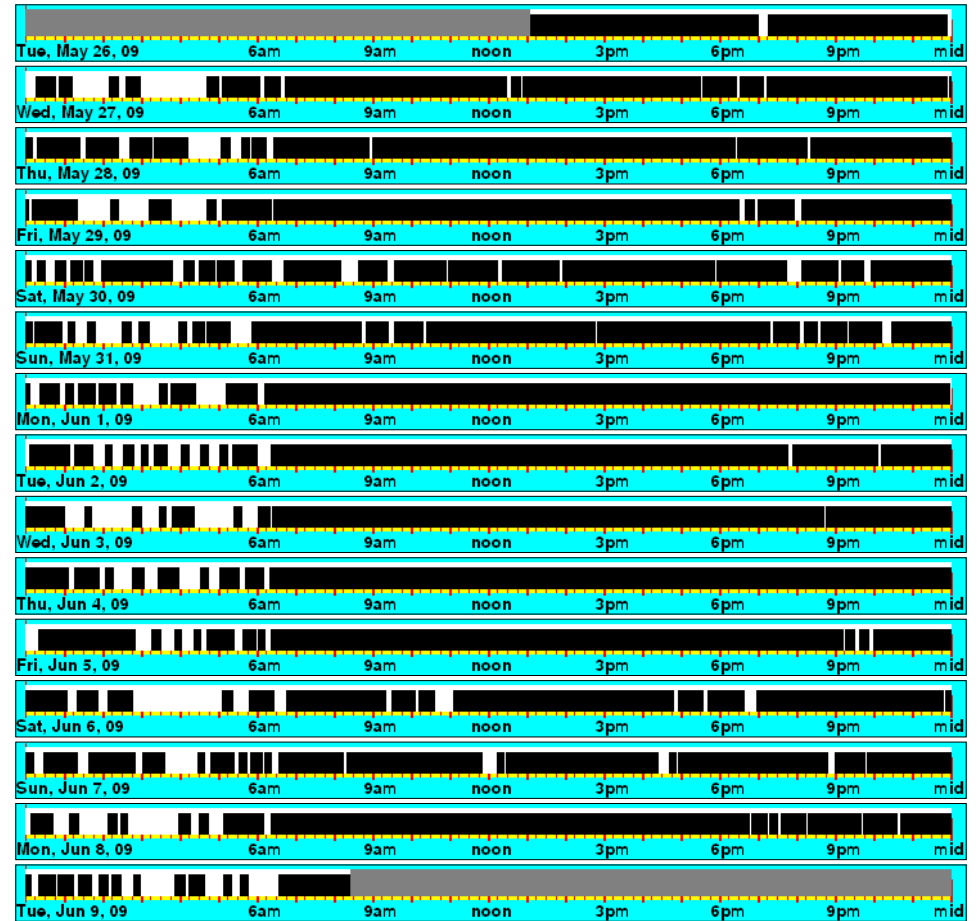
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	48.000	24.000	41.917	20.958
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	41.917	20.958

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	331.300	281.267	331.317	167.992	142.621	15.1%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	331.300	281.267	331.317	167.992	142.621	15.1%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	24.000	20.025	24.000	20.583	23.991	20.159	24.000	19.967	24.000	21.475	24.000	20.958	24.000	19.433
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	24.000	20.025	24.000	20.583	23.991	20.159	24.000	19.967	24.000	21.475	24.000	20.958	24.000	19.433

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	331.300	281.267	331.317	^ ^ ^ ^	167.992	142.621	15.1%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	331.300	281.267	331.317		167.992	142.621	15.1%



HQ- boudreau

Area type: Private Office. Logger: 20958. Time delay 10 minutes. Noresco, Newton Police buildings

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	43.433	24.000	5.067	2.800	2.033	1.124
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	43.433	24.000	5.067	2.800	2.033	1.124

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	11.350	5.675	7.000	3.500
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	11.350	5.675	7.000	3.500

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	0.100	0.050	0.100	0.050
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.100	0.050	0.100	0.050

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	17.500	8.750	11.833	5.917
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	17.500	8.750	11.833	5.917

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	10.100	5.050	5.933	2.967
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	10.100	5.050	5.933	2.967

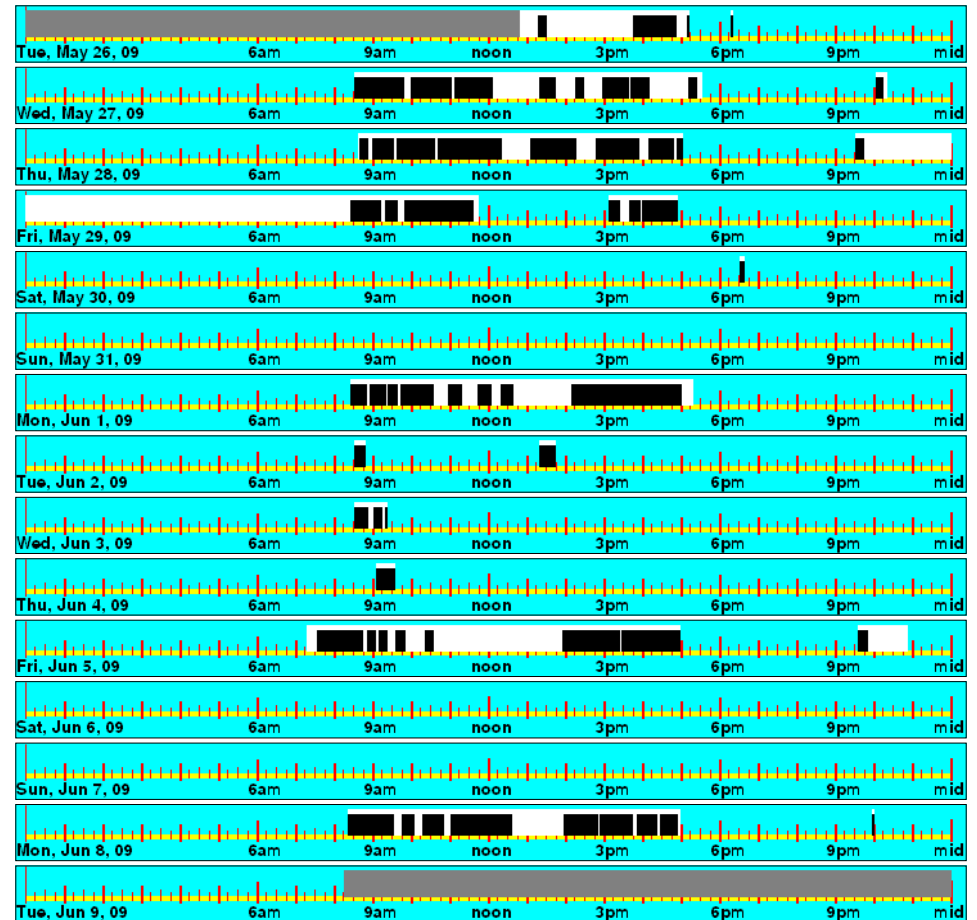
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	24.417	12.208	9.467	4.733
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	24.417	12.208	9.467	4.733

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	68.533	36.367	331.433	34.739	18.434	46.9%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	68.533	36.367	331.433	34.739	18.434	46.9%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	8.750	5.917	2.800	1.124	5.050	2.967	5.675	3.500	12.208	4.733	0.050	0.050
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	8.750	5.917	2.800	1.124	5.050	2.967	5.675	3.500	12.208	4.733	0.050	0.050

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	68.533	36.367	331.433	^ ^ ^ ^	34.739	18.434	46.9%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	68.533	36.367	331.433		34.739	18.434	46.9%



HQ- capt. dishpatch hall

Area type: Hallway. Logger: 21261. Time delay 10 minutes. Noresco, Newton Police buildings

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	48.000	24.000	40.700	20.350
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	40.700	20.350

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	43.433	24.000	43.417	23.991	36.633	20.243
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	43.433	24.000	43.417	23.991	36.633	20.243

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	48.000	24.000	42.400	21.200
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	42.400	21.200

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	48.000	24.000	41.367	20.683
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	41.367	20.683

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	48.000	24.000	40.667	20.333
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	40.667	20.333

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	48.000	24.000	39.517	19.758
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	39.517	19.758

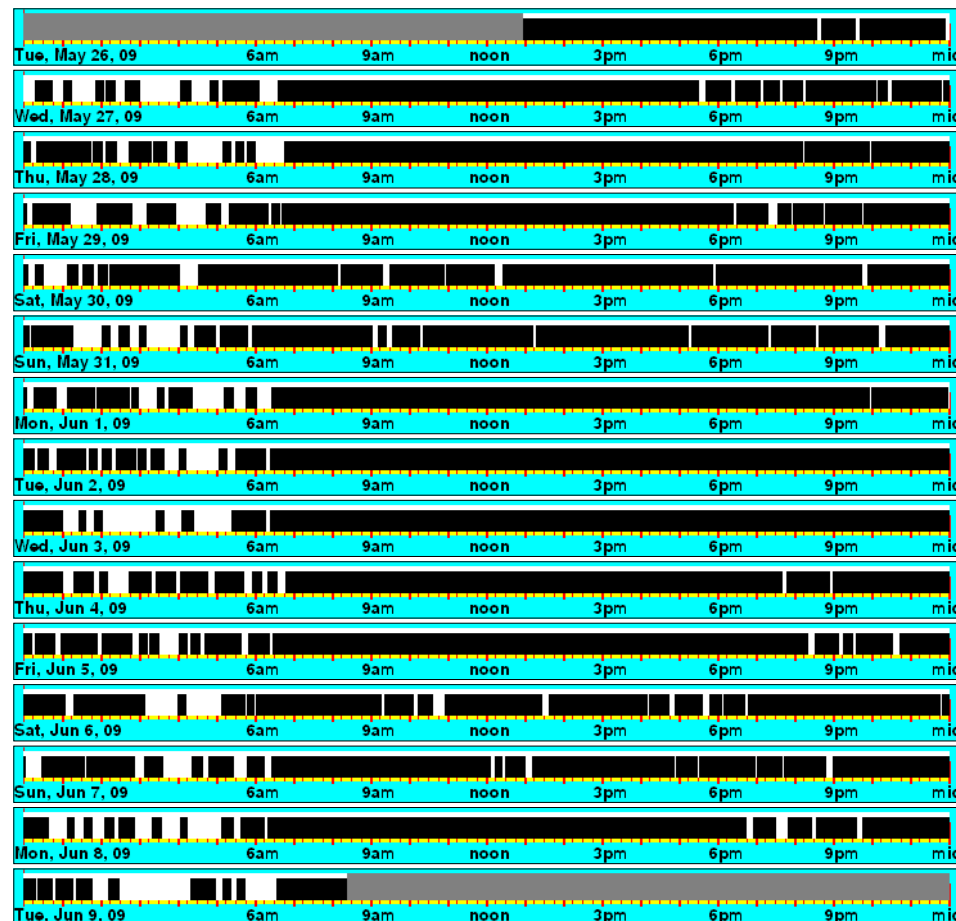
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	48.000	24.000	42.433	21.217
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	42.433	21.217

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	331.417	283.717	331.433	167.992	143.813	14.4%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	331.417	283.717	331.433	167.992	143.813	14.4%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	24.000	20.350	24.000	20.333	23.991	20.243	24.000	19.758	24.000	21.200	24.000	21.217	24.000	20.683
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	24.000	20.350	24.000	20.333	23.991	20.243	24.000	19.758	24.000	21.200	24.000	21.217	24.000	20.683

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	331.417	283.717	331.433	^ ^ ^ ^	167.992	143.813	14.4%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	331.417	283.717	331.433		167.992	143.813	14.4%



HQ- detective bureau

Area type: Open Space. Logger: 22295. Time delay 10 minutes. Noresco, Newton Police buildings

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	10.750	5.375	3.267	1.633
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	10.750	5.375	3.267	1.633

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	43.500	24.000	25.917	14.299	16.300	8.993
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	43.500	24.000	25.917	14.299	16.300	8.993

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	25.550	12.775	19.033	9.517
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	25.550	12.775	19.033	9.517

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	12.050	6.025	6.867	3.433
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	12.050	6.025	6.867	3.433

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	27.200	13.600	25.000	12.500
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	27.200	13.600	25.000	12.500

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	27.967	13.983	18.167	9.083
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	27.967	13.983	18.167	9.083

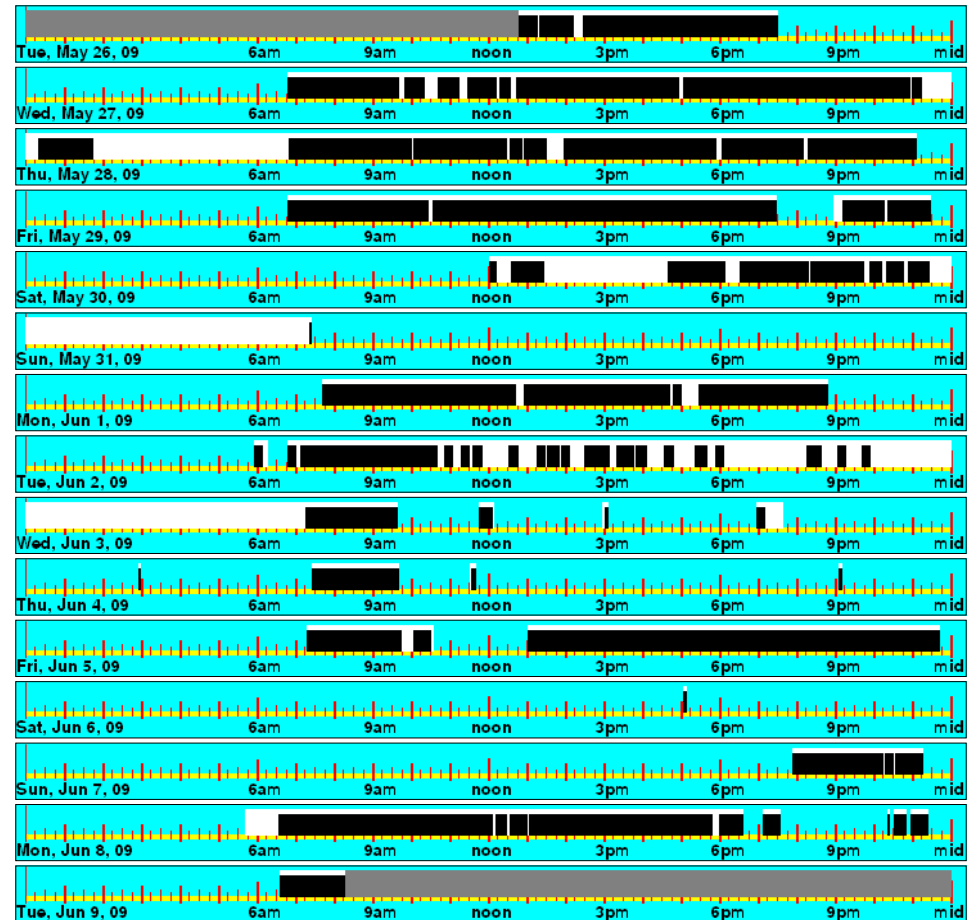
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	29.100	14.550	28.200	14.100
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	29.100	14.550	28.200	14.100

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	158.533	116.833	331.500	80.343	59.210	26.3%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	158.533	116.833	331.500	80.343	59.210	26.3%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	5.375	1.633	13.600	12.500	14.299	8.993	13.983	9.083	12.775	9.517	14.550	14.100	6.025	3.433
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	5.375	1.633	13.600	12.500	14.299	8.993	13.983	9.083	12.775	9.517	14.550	14.100	6.025	3.433

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	158.533	116.833	331.500	^ ^ ^ ^	80.343	59.210	26.3%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	158.533	116.833	331.500		80.343	59.210	26.3%



HQ- gaurd rm. Lounge

Area type: Meeting Rooms. Logger: 22831. Time delay 10 minutes. Noresco, Newton Police buildings

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	31.433	15.717	17.767	8.883
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	31.433	15.717	17.767	8.883

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	43.417	24.000	30.200	16.694	15.433	8.531
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	43.417	24.000	30.200	16.694	15.433	8.531

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	37.600	18.800	22.250	11.125
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	37.600	18.800	22.250	11.125

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	34.683	17.342	22.300	11.150
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	34.683	17.342	22.300	11.150

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	37.267	18.633	21.867	10.933
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	37.267	18.633	21.867	10.933

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	42.900	21.450	24.433	12.217
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	42.900	21.450	24.433	12.217

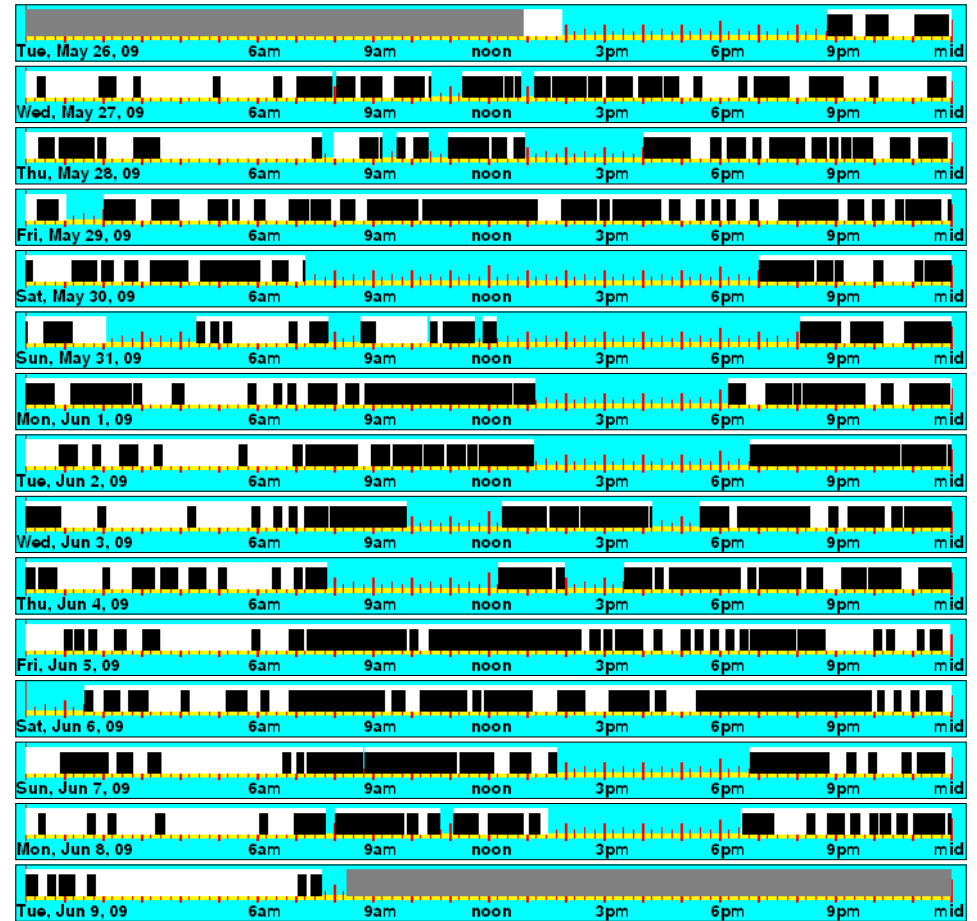
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	46.950	23.475	28.950	14.475
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	46.950	23.475	28.950	14.475

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	261.033	153.000	331.417	132.322	77.558	41.4%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	261.033	153.000	331.417	132.322	77.558	41.4%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	15.717	8.883	18.633	10.933	16.694	8.531	21.450	12.217	18.800	11.125	23.475	14.475	17.342	11.150
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	15.717	8.883	18.633	10.933	16.694	8.531	21.450	12.217	18.800	11.125	23.475	14.475	17.342	11.150

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	261.033	153.000	331.417	^ ^ ^ ^	132.322	77.558	41.4%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	261.033	153.000	331.417		132.322	77.558	41.4%



HQ- guard rm.

Area type: Open Space. Logger: 24144. Time delay 10 minutes. Noresco, Newton Police buildings

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	33.800	16.900	21.533	10.767
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	33.800	16.900	21.533	10.767

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	43.433	24.000	37.017	20.454	22.717	12.553
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	43.433	24.000	37.017	20.454	22.717	12.553

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	38.700	19.350	26.100	13.050
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	38.700	19.350	26.100	13.050

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	42.483	21.242	25.300	12.650
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	42.483	21.242	25.300	12.650

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	37.567	18.783	22.700	11.350
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	37.567	18.783	22.700	11.350

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	39.533	19.767	23.433	11.717
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	39.533	19.767	23.433	11.717

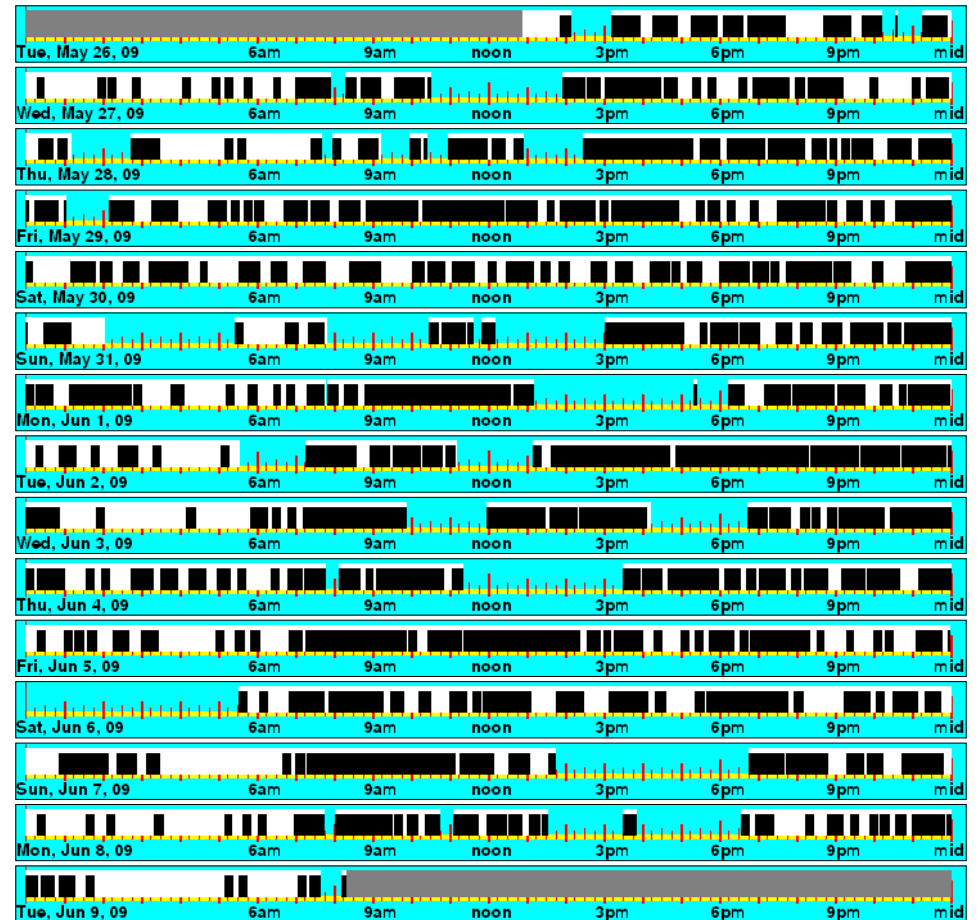
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	46.817	23.408	31.267	15.633
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	46.817	23.408	31.267	15.633

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	275.917	173.050	331.433	139.859	87.717	37.3%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	275.917	173.050	331.433	139.859	87.717	37.3%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	16.900	10.767	18.783	11.350	20.454	12.553	19.767	11.717	19.350	13.050	23.408	15.633	21.242	12.650
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	16.900	10.767	18.783	11.350	20.454	12.553	19.767	11.717	19.350	13.050	23.408	15.633	21.242	12.650

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	275.917	173.050	331.433	^ ^ ^ ^	139.859	87.717	37.3%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	275.917	173.050	331.433		139.859	87.717	37.3%



HQ- locker room mens

Area type: Open Space. Logger: 23530. Time delay 10 minutes. Noresco, Newton Police buildings

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	48.000	24.000	13.467	6.733
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	13.467	6.733

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	43.317	24.000	43.300	23.991	12.867	7.129
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	43.317	24.000	43.300	23.991	12.867	7.129

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	47.900	23.950	18.367	9.183
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	47.900	23.950	18.367	9.183

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	48.000	24.000	12.933	6.467
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	12.933	6.467

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	48.000	24.000	14.300	7.150
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	14.300	7.150

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	47.800	23.900	16.833	8.417
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	47.800	23.900	16.833	8.417

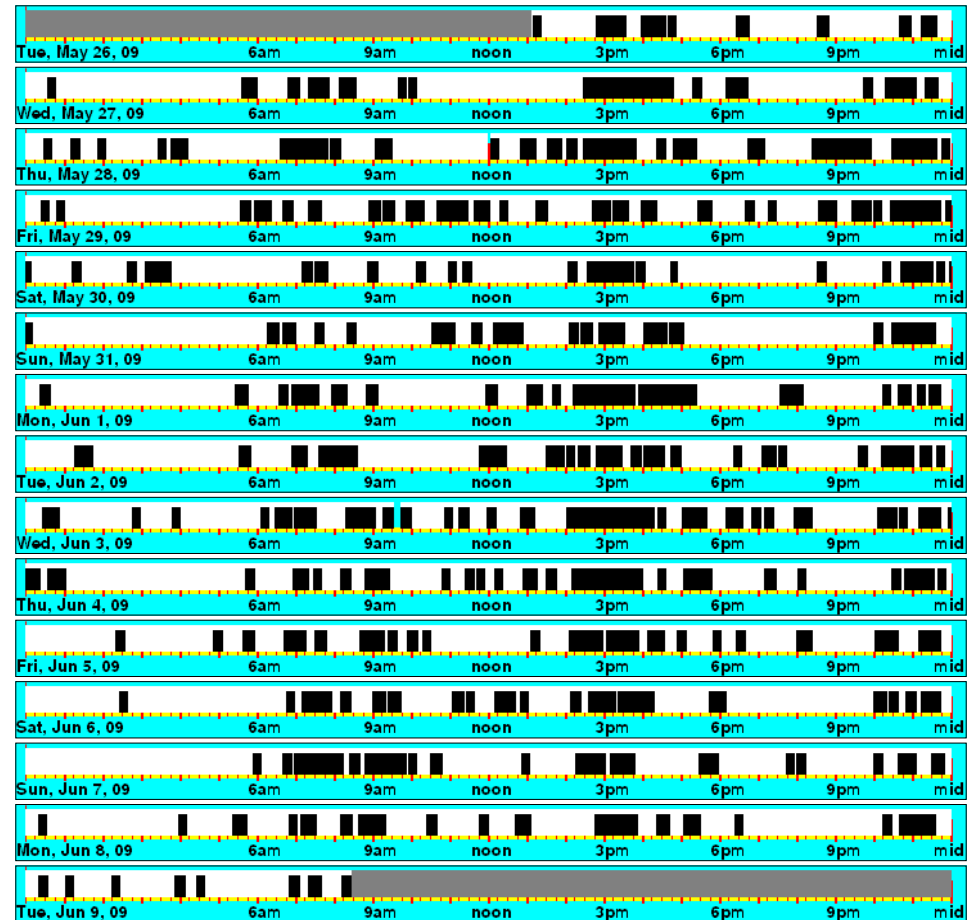
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	48.000	24.000	16.533	8.267
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	16.533	8.267

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	331.000	105.300	331.317	167.839	53.394	68.2%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	331.000	105.300	331.317	167.839	53.394	68.2%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	24.000	6.733	24.000	7.150	23.991	7.129	23.900	8.417	23.950	9.183	24.000	8.267	24.000	6.467
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	24.000	6.733	24.000	7.150	23.991	7.129	23.900	8.417	23.950	9.183	24.000	8.267	24.000	6.467

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	331.000	105.300	331.317	^ ^ ^ ^	167.839	53.394	68.2%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	331.000	105.300	331.317		167.839	53.394	68.2%



HQ- mcmains

Area type: Private Office. Logger: 24332. Time delay 10 minutes. Noresco, Newton Police buildings

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.000	0.000	0.000	0.000

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	40.467	24.000	7.567	4.488	5.200	3.084
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	40.467	24.000	7.567	4.488	5.200	3.084

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	8.883	4.442	5.967	2.983
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	8.883	4.442	5.967	2.983

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	1.967	0.983	1.333	0.667
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	1.967	0.983	1.333	0.667

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	12.800	6.400	8.133	4.067
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	12.800	6.400	8.133	4.067

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	9.250	4.625	4.233	2.117
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	9.250	4.625	4.233	2.117

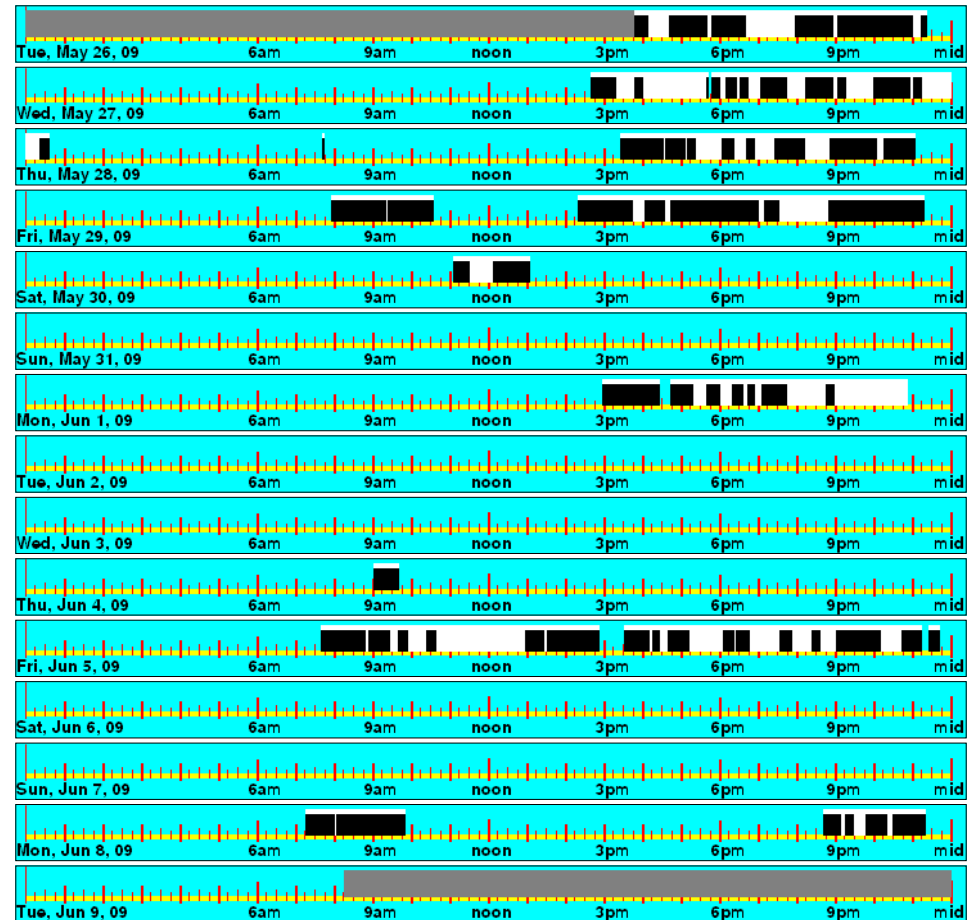
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	26.767	13.383	17.667	8.833
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	26.767	13.383	17.667	8.833

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	67.233	42.533	328.467	34.388	21.754	36.7%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	67.233	42.533	328.467	34.388	21.754	36.7%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.000	0.000	6.400	4.067	4.488	3.084	4.625	2.117	4.442	2.983	13.383	8.833	0.983	0.667
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.000	6.400	4.067	4.488	3.084	4.625	2.117	4.442	2.983	13.383	8.833	0.983	0.667

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	67.233	42.533	328.467	^ ^ ^ ^	34.388	21.754	36.7%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	67.233	42.533	328.467		34.388	21.754	36.7%



HQ- mens room

Area type: Restroom. Logger: 24126. Time delay 10 minutes. Noresco, Newton Police buildings

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	48.000	24.000	19.350	9.675
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	19.350	9.675

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	43.300	24.000	43.283	23.991	17.850	9.894
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	43.300	24.000	43.283	23.991	17.850	9.894

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	47.900	23.950	24.900	12.450
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	47.900	23.950	24.900	12.450

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	48.000	24.000	17.183	8.592
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	17.183	8.592

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	48.000	24.000	23.267	11.633
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	23.267	11.633

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	47.967	23.983	21.267	10.633
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	47.967	23.983	21.267	10.633

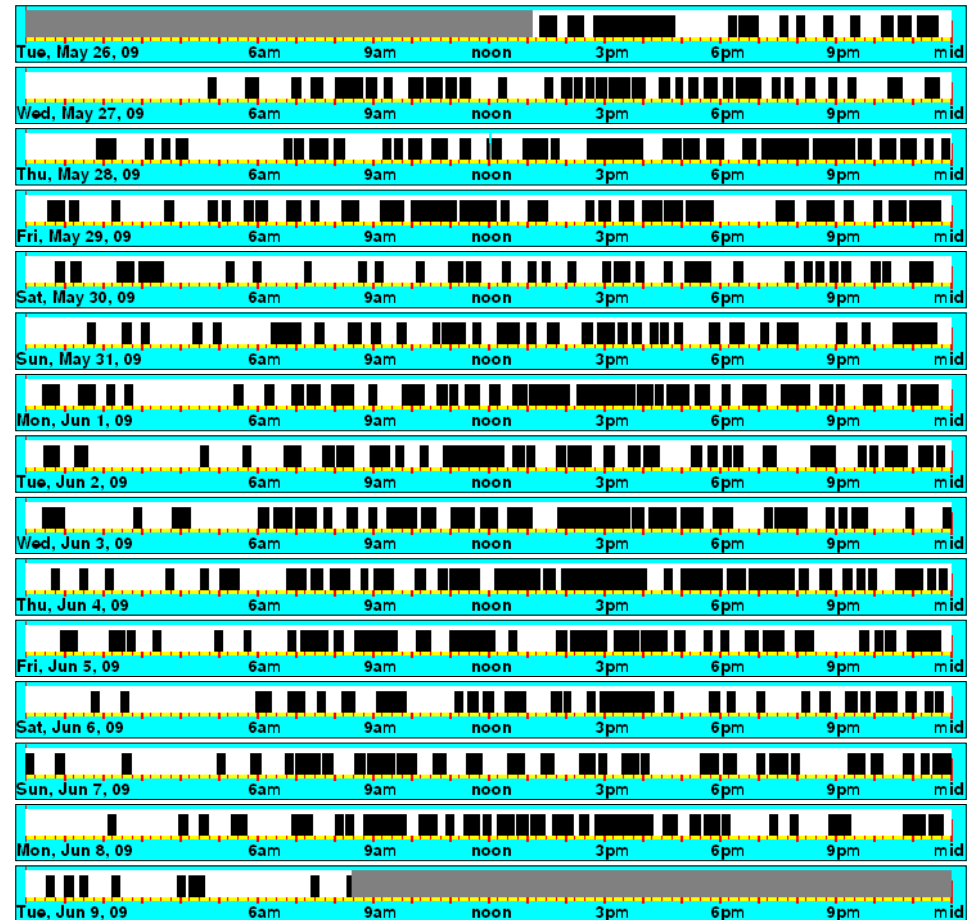
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	48.000	24.000	23.133	11.567
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	23.133	11.567

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	331.150	146.950	331.300	167.924	74.517	55.6%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	331.150	146.950	331.300	167.924	74.517	55.6%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	24.000	9.675	24.000	11.633	23.991	9.894	23.983	10.633	23.950	12.450	24.000	11.567	24.000	8.592
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	24.000	9.675	24.000	11.633	23.991	9.894	23.983	10.633	23.950	12.450	24.000	11.567	24.000	8.592

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	331.150	146.950	331.300	^ ^ ^ ^	167.924	74.517	55.6%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	331.150	146.950	331.300		167.924	74.517	55.6%



HQ- public mens

Area type: Restroom. Logger: 24527. Time delay 10 minutes. Noresco, Newton Police buildings

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	32.067	16.033	7.867	3.933
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	32.067	16.033	7.867	3.933

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	43.450	24.000	38.367	21.192	7.383	4.078
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	43.450	24.000	38.367	21.192	7.383	4.078

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	34.200	17.100	8.133	4.067
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	34.200	17.100	8.133	4.067

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	37.900	18.950	9.367	4.683
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	37.900	18.950	9.367	4.683

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	37.033	18.517	9.167	4.583
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	37.033	18.517	9.167	4.583

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	38.600	19.300	12.733	6.367
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	38.600	19.300	12.733	6.367

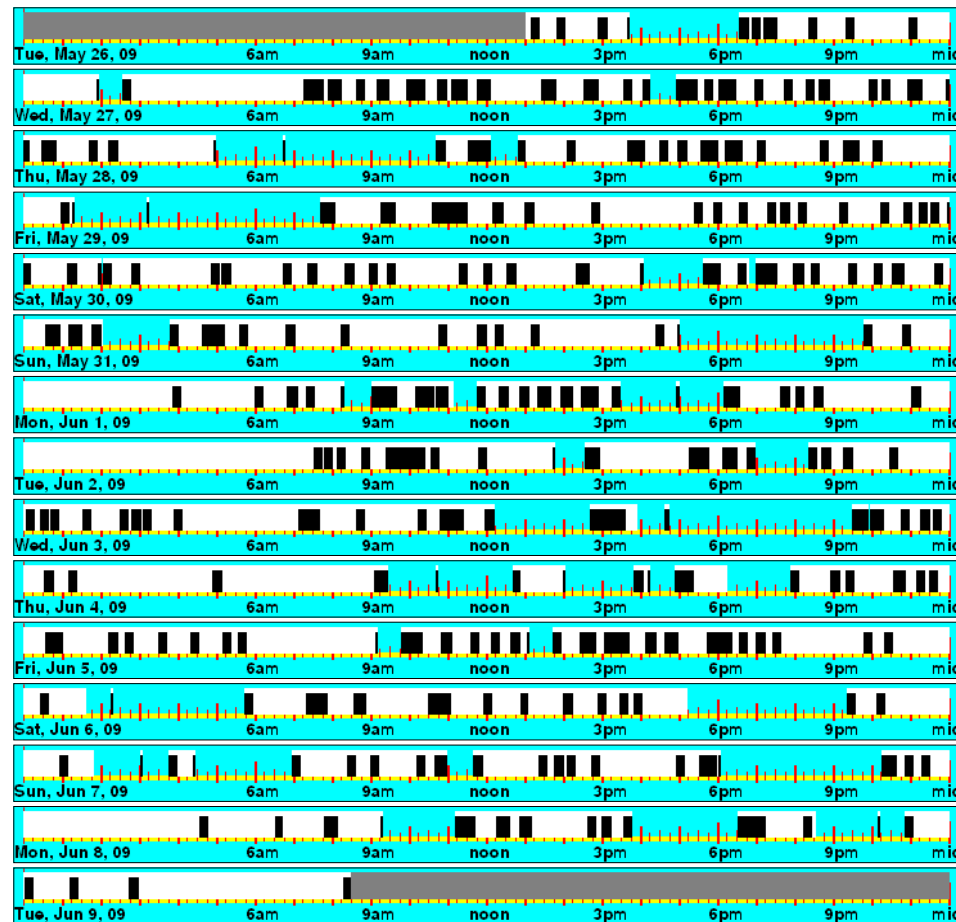
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	40.367	20.183	11.467	5.733
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	40.367	20.183	11.467	5.733

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	258.533	66.117	331.450	131.041	33.512	74.4%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	258.533	66.117	331.450	131.041	33.512	74.4%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	16.033	3.933	18.517	4.583	21.192	4.078	19.300	6.367	17.100	4.067	20.183	5.733	18.950	4.683
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	16.033	3.933	18.517	4.583	21.192	4.078	19.300	6.367	17.100	4.067	20.183	5.733	18.950	4.683

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	258.533	66.117	331.450	^ ^ ^ ^	131.041	33.512	74.4%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	258.533	66.117	331.450		131.041	33.512	74.4%



HQ- research&details

Area type: Open Space. Logger: 20828. Time delay 10 minutes. Noresco, Newton Police buildings

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	48.000	24.000	13.817	6.908
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	13.817	6.908

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	43.400	24.000	43.383	23.991	11.033	6.101
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	43.400	24.000	43.383	23.991	11.033	6.101

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	48.000	24.000	15.933	7.967
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	15.933	7.967

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	48.000	24.000	16.133	8.067
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	16.133	8.067

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	48.000	24.000	18.317	9.158
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	18.317	9.158

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	48.000	24.000	15.000	7.500
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	15.000	7.500

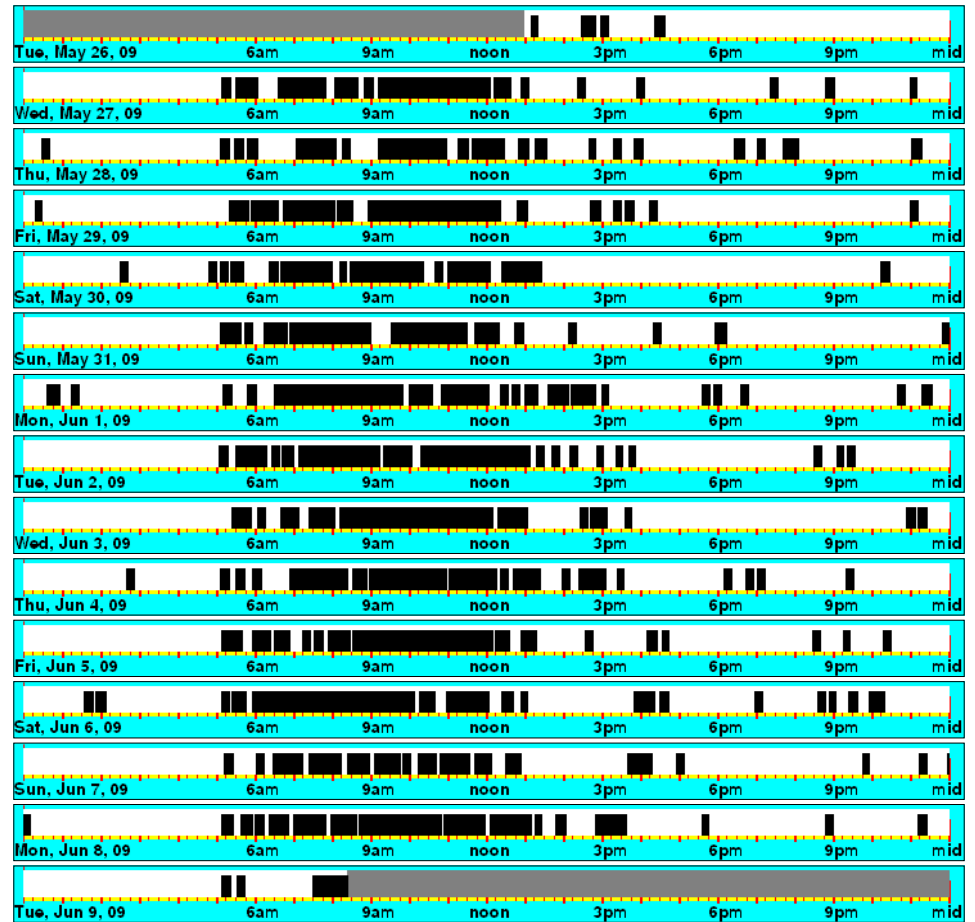
Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Normalized Occ per Day
Peak	48.000	24.000	48.000	24.000	15.767	7.883
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	15.767	7.883

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	331.383	106.000	331.400	167.992	53.736	68.0%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	331.383	106.000	331.400	167.992	53.736	68.0%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	24.000	6.908	24.000	9.158	23.991	6.101	24.000	7.500	24.000	7.967	24.000	7.883	24.000	8.067
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	24.000	6.908	24.000	9.158	23.991	6.101	24.000	7.500	24.000	7.967	24.000	7.883	24.000	8.067

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	331.383	106.000	331.400	^ ^ ^ ^	167.992	53.736	68.0%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	331.383	106.000	331.400		167.992	53.736	68.0%



HQ- sergants office

Area type: Private Office. Logger: 24616. Time delay 10 minutes. Noresco, Newton Police buildings

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	44.900	22.450	11.900	5.950
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	44.900	22.450	11.900	5.950

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	43.400	24.000	34.217	18.922	14.900	8.240
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	43.400	24.000	34.217	18.922	14.900	8.240

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	46.800	23.400	17.283	8.642
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	46.800	23.400	17.283	8.642

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	38.567	19.283	15.733	7.867
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	38.567	19.283	15.733	7.867

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	47.667	23.833	9.500	4.750
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	47.667	23.833	9.500	4.750

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	46.700	23.350	23.350	11.675
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	46.700	23.350	23.350	11.675

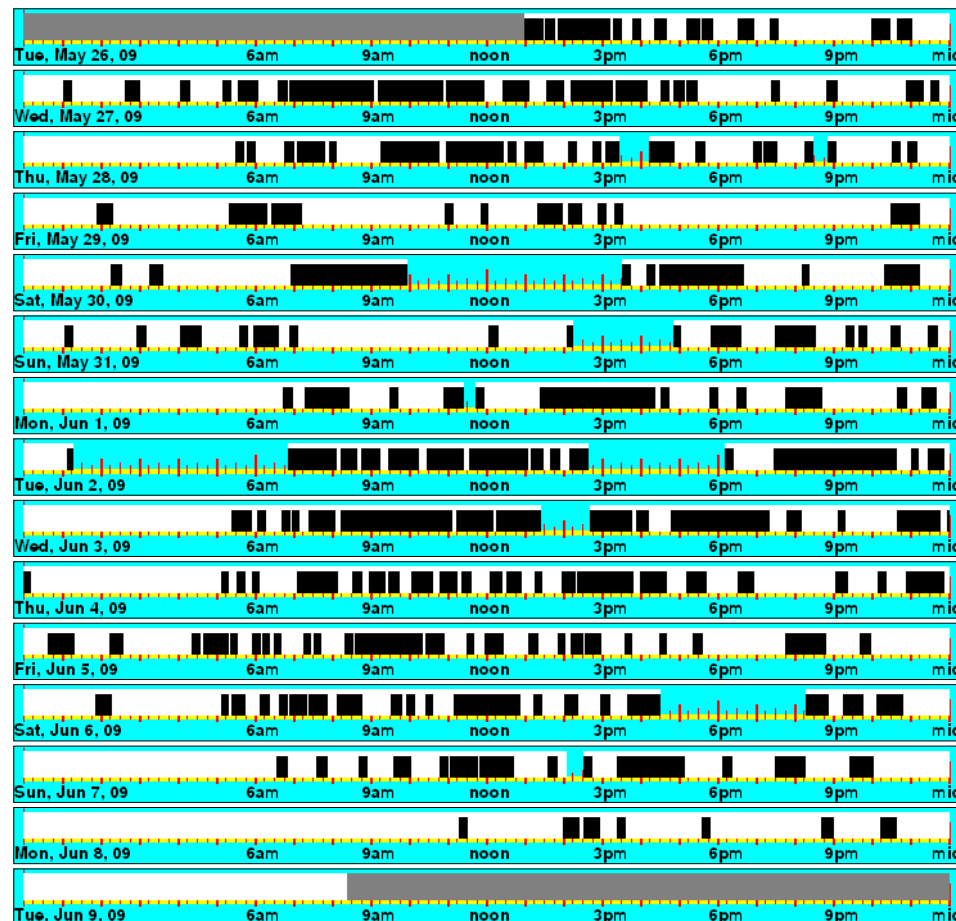
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlzd Lites On per Day	Logged Occ	Normlzd Occ per Day
Peak	48.000	24.000	48.000	24.000	13.400	6.700
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	48.000	24.000	13.400	6.700

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	306.850	106.067	331.400	155.555	53.769	65.4%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	306.850	106.067	331.400	155.555	53.769	65.4%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	22.450	5.950	23.833	4.750	18.922	8.240	23.350	11.675	23.400	8.642	24.000	6.700	19.283	7.867
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	22.450	5.950	23.833	4.750	18.922	8.240	23.350	11.675	23.400	8.642	24.000	6.700	19.283	7.867

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	306.850	106.067	331.400	^ ^ ^ ^	155.555	53.769	65.4%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	306.850	106.067	331.400		155.555	53.769	65.4%



HQ- tech. bureau

Area type: Open Space. Logger: 21752. Time delay 10 minutes. Noresco, Newton Police buildings

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	0.067	0.033	0.067	0.033
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.067	0.033	0.067	0.033

Tue	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	43.417	24.000	25.450	14.068	17.717	9.793
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	43.417	24.000	25.450	14.068	17.717	9.793

Thu	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	32.400	16.200	26.233	13.117
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	32.400	16.200	26.233	13.117

Sat	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	0.000	0.000	0.000	0.000
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	0.000	0.000	0.000	0.000

Mon	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	24.550	12.275	22.517	11.258
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	24.550	12.275	22.517	11.258

Wed	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	29.033	14.517	22.900	11.450
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	29.033	14.517	22.900	11.450

Fri	Total Log Time	Hours /Day	Logged Lites On	Norml'd Lites On per Day	Logged Occ	Norml'd Occ per Day
Peak	48.000	24.000	23.767	11.883	20.333	10.167
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	23.767	11.883	20.333	10.167

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	135.267	109.767	331.417	68.569	55.642	18.9%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	135.267	109.767	331.417	68.569	55.642	18.9%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	0.033	0.033	12.275	11.258	14.068	9.793	14.517	11.450	16.200	13.117	11.883	10.167	0.000	0.000
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.033	0.033	12.275	11.258	14.068	9.793	14.517	11.450	16.200	13.117	11.883	10.167	0.000	0.000

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	135.267	109.767	331.417	^ ^ ^ ^	68.569	55.642	18.9%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	135.267	109.767	331.417		68.569	55.642	18.9%



HQ- weight room

Area type: Open Space. Logger: 22031. Time delay 10 minutes. Noresco, Newton Police buildings

Energy Analysis

Data by Day of Week

Sun	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	19.900	9.950	5.067	2.533
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	19.900	9.950	5.067	2.533

Tue	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	43.283	24.000	19.867	11.016	3.567	1.978
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	43.283	24.000	19.867	11.016	3.567	1.978

Thu	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	23.133	11.567	6.233	3.117
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	23.133	11.567	6.233	3.117

Sat	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	13.267	6.633	4.300	2.150
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	13.267	6.633	4.300	2.150

Mon	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	33.133	16.567	9.467	4.733
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	33.133	16.567	9.467	4.733

Wed	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	34.533	17.267	7.567	3.783
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	34.533	17.267	7.567	3.783

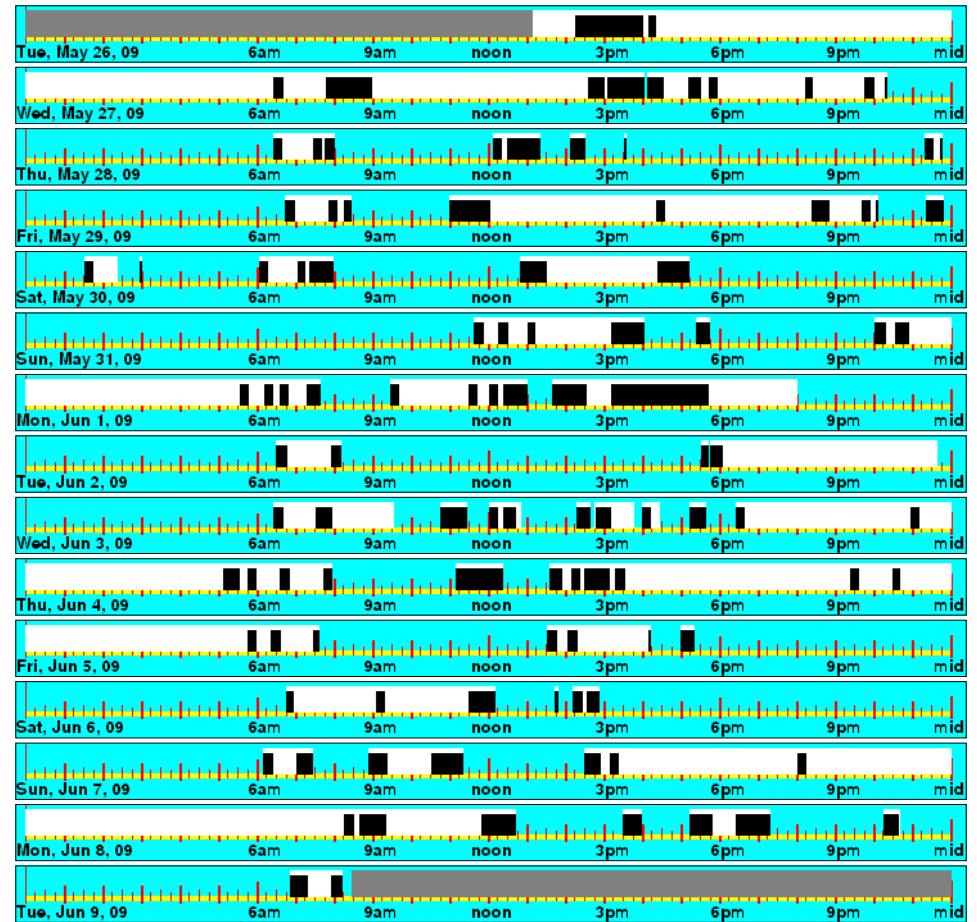
Fri	Total Log Time	Hours /Day	Logged Lites On	Normlized Lites On per Day	Logged Occ	Normlized Occ per Day
Peak	48.000	24.000	23.833	11.917	4.300	2.150
Off	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000
Total	48.000	24.000	23.833	11.917	4.300	2.150

	Logged Totals			Normalized Totals		
	Lites On	Occupied	Logged	Lites On	Occupied	% Savings
Peak	167.667	40.500	331.283	85.027	20.538	75.8%
Off	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000	0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000	0.000	0.000	0.0%
Total	167.667	40.500	331.283	85.027	20.538	75.8%

Normalized Data

	Sun		Mon		Tue		Wed		Thu		Fri		Sat	
	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ	LO	Occ
Peak	9.950	2.533	16.567	4.733	11.016	1.978	17.267	3.783	11.567	3.117	11.917	2.150	6.633	2.150
Off Peak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sh 2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	9.950	2.533	16.567	4.733	11.016	1.978	17.267	3.783	11.567	3.117	11.917	2.150	6.633	2.150

	Logged Totals			Normalized by Day	Normalized Weekly Totals		
	Lites On	Occupied	Logged		Lites On	Occupied	% Savings
Peak	167.667	40.500	331.283	^ ^ ^ ^	85.027	20.538	75.8%
Off Peak	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 1	0.000	0.000	0.000		0.000	0.000	0.0%
Sh 2	0.000	0.000	0.000		0.000	0.000	0.0%
Total	167.667	40.500	331.283		85.027	20.538	75.8%



DOMESTIC WATER CONSERVATION

Overview

NORESCO conducted an investigation of the eight facilities for the City of Newton and found significant opportunities for water conservation improvements. NORESKO will replace selected existing standard flow devices with low flow units to reduce water and energy consumption.

Affected Areas

Facilities included in this measure are presented in the following table.

School Buildings	City Buildings
Bigelow Middle School	City Hall
Brown Middle School	Police Headquarters
Oak Hill Middle School	Police Garage
Education Center	Police Annex

Detailed Description

Existing System

NORESCO surveyed plumbing fixtures to identify opportunities for water conservation improvements. Most of the sanitary water fixtures (toilets, urinals, faucets, and showers) utilize standard flow devices and are over ten years old. The majority of toilet fixtures in the schools have flushometer (or tankless) toilets. Most of the existing plumbing fixtures consume water at levels well above current standards.

The following table lists typical standard flow rates of various older fixtures. Although NORESKO found that some toilets, faucets, and urinals have already been replaced with lower flow devices than those listed below, most existing fixtures are older, higher flow devices and can benefit from low flow retrofits:

Fixture	Description	Estimated Flow Rate
Toilets	Floor mount flushometer	3.5 gpf
Faucets	Male threaded aerator	2.2 gpm
Urinals	Wall mount flushometer	1.5 gpf
Showers	Shower Heads	2.5 gpf

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*Standard flow aerators
will be retrofitted.*



*Flushometer (tankless) toilets
will be retrofitted.*

Recommended Improvements

With the advent of efficient fixture design developed to conserve water, it is cost-effective to replace and/or retrofit most of the higher flowrate fixtures. NORESKO has successfully implemented water conservation improvements on many previous projects, and expects to achieve equal or greater results with low-flow technology that continues to improve.

NORESCO will replace only the flushometers, faucet aerators, and showerheads that will help the overall economics of the program. Water conserving aerators, flushometers, and showerheads not only generate dramatic water savings, but also reduce the energy required to heat the water, ensuring an economically-attractive measure. The approximate flow rates of the new, reliable low-flow fixtures will be:

Fixture	Description	Flow Rate
Toilets	New flushometer	1.6 gpf
Faucets	Replacement laminar aerators	0.75 - 1.5 gpm
Urinals	New flushometer	1.0 gpf
Showers	New Shower Head	1.0 gpf

The water savings analysis is based on the comparison of rated water usage between new and old fixtures, calculated daily usage frequency, and quantity of fixtures converted. Cost savings is based on both water and sewer volumetric charges. Function of the existing fixtures will be unimpaired and may even improve in some cases.

Advantages

- Reduced water use and, therefore, reduced water and sewer utility expense.
- Reduced heating load proportional to reduced hot water use.
- Reduced materials expense associated with plumbing fixture maintenance. NORESKO has not included these additional cost savings in the project cash flow.

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- Less labor required for plumbing fixture maintenance. NORESKO has not included these potential additional cost savings in the project cash flow.
- Less water leakage from new fixtures lessens the occurrence of freestanding water forming which can increase the incidence of mold and pests.

Scope of Work

The following briefly describes the scope work in each area:

- Obtain City approval for fixtures and installation plan
- Close and secure the water shut-off valve in preparation for retrofit
- Remove and dispose of existing fixtures
- Install new low-flow aerators and flushometer valves
- Repair incidentals to removal and installation
- Open the existing water valve and reinstate water flow to the new low flow devices
- Check, test, and validate the operation of the new equipment
- Provide maintenance and operating manuals for the installed equipment

Quantities

- Bigelow Middle School
 - (34) New 0.5 GPM Aerator
 - (2) New 1.0 GPM Aerator
 - (35) New 1.6 GPM Toilet, Flush Valve, and Seat
 - (15) Urinal 1.0 GPM Flush Valve
- Brown Middle School
 - (39) New 0.5 GPM Aerator
 - (4) New 1.0 GPM Aerator
 - (56) New 1.6 GPM Toilet, Flush Valve, and Seat
 - (8) Urinal 1.0 GPM Flush Valve
 - (1) Toilet 1.6 GPM Retrofit Flush Valve
 - (30) No Retrofit
- Oak Hill Middle School
 - (23) New 0.5 GPM Aerator
 - (3) New 1.0 GPM Aerator
 - (34) New 1.6 GPM Toilet, Flush Valve, and Seat
 - (11) Urinal 1.0 GPM Flush Valve
 - (4) New 2.0 GPM Shower Head
 - (53) No Retrofit
- Education Center
 - (11) New 0.5 GPM Aerator
 - (12) New 1.6 GPM Toilet, Flush Valve, and Seat

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- (1) Urinal 1.0 GPM Flush Valve
- (3) No Retrofit
- City Hall
 - (15) New 0.5 GPM Aerator
 - (4) New 1.0 GPM Aerator
 - (16) New 1.6 GPM Toilet, Flush Valve, and Seat
 - (8) Urinal 1.0 GPM Flush Valve
 - (4) New 2.0 GPM Shower Head
 - (7) No Retrofit
- Police Headquarters
 - (12) New 0.5 GPM Aerator
 - (2) New 1.0 GPM Aerator
 - (1) New 1.6 GPM Toilet, Flush Valve, and Seat
 - (4) New 2.0 GPM Shower Head
 - (17) No Retrofit
- Police Garage
 - (2) New 0.5 GPM Aerator
 - (2) New 1.6 GPM Toilet, Flush Valve, and Seat
 - (1) New 2.0 GPM Shower Head
 - (1) No Retrofit
- Police Annex
 - (4) New 0.5 GPM Aerator
 - (4) No Retrofit

Interface with Existing Systems and Operations

Impact on Facility Operations and Performance

The facility will benefit from reduced water consumption.

Maintenance

NORESCO expects maintenance of the installed equipment to be comparable to or less than current maintenance requirements.

Customer Training

NORESCO will provide O&M manuals for the installed equipment.

Equipment Information

Manufacturer and Type

The proposed equipment will be manufactured by one of the following, or equal:

Flushometers:

Sloan • 10500 Seymour Ave., Franklin Park, IL 60131 (800) 982-5839

Aerators:

Neoperl Inc. • P. O. Box 320049, Fairfield, CT 06432 (203) 259-6800

Shower Heads:

AM Conservation • 2301 Charleston Regional PWY, Charleston, SC 29492 (800) 777-5655

Toilets:

Kohler • 444 Highland Drive, Kohler, WI 53044 (800) 456-4537

Crane • 41 Cairns Road, Mansfield, OH 44903 (800) 546-5476

Toilet Seats:

Bemis Manufacturing Co • P. O. Box 901 • Sheboygen Falls, WI 53085 • (800) 558-7651

***Domestic Water Conservation
I. Savings Calculations***

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City of Newton, MA
Water Conservation
Attachment B1: Building Summary - Overview

1	2	A	B1	B2	B3	B4	C	D	E	F	J	K	L
Facility Name	Project Phase	Building Name	Full-Time Occupants (FTO)	Part-Time Occupants (PTO)	Overnite Occupants (ONO)	Building Visitors (VIS)	Toilet Installed Qty	Urinal Installed Qty	Shower Installed Qty	Faucet Installed Qty	Total Water (kgal)	Total Energy (Therms)	Total Energy (kWh)
City of Newton	2	1 - BIGELOW MIDDLE	112	505	0	25	35	15	0	36	437	211	0
City of Newton	2	2 - BROWN MIDDLE	132	681	0	25	57	8	0	43	442	238	0
City of Newton	2	3 - OAK HILL MIDDLE	123	547	0	25	34	11	4	26	387	78	0
City of Newton	2	4 - EDUCATION CENTER	253	50	0	150	12	1	0	11	268	169	0
City of Newton	2	5 - CITY HALL	180	20	0	100	16	8	4	19	189	109	0
City of Newton	2	6 - POLICE HQ	30	0	20	20	1	0	4	14	100	296	0
City of Newton	2	7 - POLICE GARAGE	5	0	0	0	2	0	1	2	7	2	0
City of Newton	2	8 - POLICE ANNEX	15	0	0	2	0	0	0	4	3	0	219
		Totals	850	1,803	20	347	157	43	13	155	1,834	1,103	219

**City of Newton, MA
Water Conservation**

Attachment B2: Building Summary - Water Savings

1	2	A	B	C	D	E	F	G	H	I	J
							Note 1	Note 2	Note 3	Note 4	F+G+H+I
Project Name	Project Phase	Building Name	Full-Time Occupants (FTO)	Part-Time Occupants (PTO)	Overnite Occupants (ONO)	Building Visitors (VIS)	Toilet Savings (kgal)	Urinal Savings (kgal)	Shower Savings (kgal)	Faucet Savings (kgal)	Total Savings (kgals)
City of Newton	2	1 - BIGELOW MIDDLE	112	505	0	25	248	111	0	78	437
City of Newton	2	2 - BROWN MIDDLE	132	681	0	25	316	38	0	88	442
City of Newton	2	3 - OAK HILL MIDDLE	123	547	0	25	263	95	0	29	387
City of Newton	2	4 - EDUCATION CENTER	253	50	0	150	163	44	0	62	268
City of Newton	2	5 - CITY HALL	180	20	0	100	91	57	0	40	189
City of Newton	2	6 - POLICE HQ	30	0	20	20	5	0	18	77	100
City of Newton	2	7 - POLICE GARAGE	5	0	0	0	6	0	0	1	7
City of Newton	2	8 - POLICE ANNEX	15	0	0	2	0	0	0	3	3
		Totals	850	1,803	20	347	1,092	346	18	378	1,834

Note 1 - See Attachment 'Water Savings - Toilet Savings' for savings basis.

Note 2 - See Attachment 'Water Savings - Urinal Savings' for savings basis.

Note 3 - See Attachment 'Water Savings - Shower Savings' for savings basis.

Note 4 - See Attachment 'Water Savings - Faucet Savings' for savings basis.

City of Newton, MA
Water Conservation
Attachment B3: Building Summary - Energy Savings

1	2	A	C	D	E	F	G	H	I	J	K	L	M	N	O	P
									D x 1000 x 8.34 x (F - H) / C x 100000	D x 1000 x 8.34 x (F - H) / C x 3413	D x 1000 x 8.34 x (F - H) / C x 1000	E x 1000 x 8.34 x (G - H) / C x 100000	E x 1000 x 8.34 x (G - H) / C x 3413	E x 1000 x 8.34 x (G - H) / C x 1000		
				Note 1	Note 2								I + L		J + M	
Facility Name	Project Phase	Bldg Name	System Eff	Shower Savings (kgal)	Faucet Savings (kgal)	Shower H2O Temp	Faucet H2O Temp	Potable H2O Temp	Shower Savings (Therms)	Shower Savings (kWh)	Shower Savings (1000#)	Faucet Savings (Therms)	Faucet Savings (kWh)	Faucet Savings (1000#)	Total Therms Savings	Total kWh Savings
City of Newton	2	1 - BIGELOW MIDDLE	80%	0	78	100° F	80° F	54° F	0	0	0	211	0	0	211	0
City of Newton	2	2 - BROWN MIDDLE	80%	0	88	100° F	80° F	54° F	0	0	0	238	0	0	238	0
City of Newton	2	3 - OAK HILL MIDDLE	80%	0	29	100° F	80° F	54° F	0	0	0	78	0	0	78	0
City of Newton	2	4 - EDUCATION CENTER	80%	0	62	100° F	80° F	54° F	0	0	0	169	0	0	169	0
City of Newton	2	5 - CITY HALL	80%	0	40	100° F	80° F	54° F	0	0	0	109	0	0	109	0
City of Newton	2	6 - POLICE HQ	80%	18	77	100° F	80° F	54° F	88	0	0	208	0	0	296	0
City of Newton	2	7 - POLICE GARAGE	80%	0	1	100° F	80° F	54° F	0	0	0	2	0	0	2	0
City of Newton	2	8 - POLICE ANNEX	95%	0	3	100° F	80° F	54° F	0	0	0	0	219	0	0	219
		Totals		18	378				88	0	0	1,016	219	0	1,103	219

Note 1 - See Attachment 'Water Savings - Shower Savings' for savings calculations.

Note 2 - See Attachment 'Water Savings - Faucet Savings' for savings calculations.

City of Newton, MA
Water Conservation
Attachment D1: Use Profile - Frequency Defaults

1	2	A	B	B1	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
			Note 1	Note 2	Note 3	Note 4	Note 5													
Facility Name	Project Phase	Building Name	FTO Uses/Person/Day				PTO Uses/Person/Day				ONO Uses/Person/Day					VIS Uses/Person/Day				
			Male Toilets	Male Urinals	Female Toilets	Person Faucets	Male Toilets	Male Urinals	Female Toilets	Person Faucets	Male Toilets	Male Urinals	Female Toilet	Person Shower	Person Faucets	Male Toilets	Male Urinals	Female Toilets	Person Shower	Person Faucets
City of Newton	2	1 - BIGELOW MIDDLE	0.75	2.25	3	3	0.375	1.125	1.5	1.5	0	0	0	0	0	0.05	0.15	0.2	0	0.2
City of Newton	2	2 - BROWN MIDDLE	0.75	2.25	3	3	0.375	1.125	1.5	1.5	0	0	0	0	0	0.05	0.15	0.2	0	0.2
City of Newton	2	3 - OAK HILL MIDDLE	0.75	2.25	3	3	0.375	1.125	1.5	1.5	0	0	0	0	0	0.05	0.15	0.2	1	0.2
City of Newton	2	4 - EDUCATION CENTER	0.75	2.25	3	3	0.375	1.125	1.5	1.5	0	0	0	0	0	0.05	0.15	0.2	0	0.2
City of Newton	2	5 - CITY HALL	0.75	2.25	3	3	0.375	1.125	1.5	1.5	0	0	0	0	0	0.05	0.15	0.2	1	0.2
City of Newton	2	6 - POLICE HQ	0.75	2.25	3	3	0	0	0	0	1.25	3.75	5	1	5	0.05	0.15	0.2	1	0.2
City of Newton	2	7 - POLICE GARAGE	3	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
City of Newton	2	8 - POLICE ANNEX	3	0	3	3	0	0	0	0	0	0	0	0	0	0.2	0	0.2	0	0.2

NOTE:
 Uses per day in buildings where there are no respective populations are zeroed.
 Note 1 - Number of male toilet uses per workday.
 Note 2 - Number of male urinal uses per workday.
 Note 3 - Number of female toilet uses per workday.
 Note 4 - Number of faucet uses per workday.
 Note 5 - Number of shower uses per day.

City of Newton, MA
Water Conservation
Attachment D2: Use Profile - Duration Defaults

1	2	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
											B + (C x G) + (D x H) + (E x I)									
											Note 1	Note 2	Note 3	Note 4	Note 5	Note 6	Note 7	Note 8		
Facility Name	Project Phase	Building Name	Full-Time Occupants (FTO)	Part-Time Occupants (PTO)	Overnite Occupants (ONO)	Building Visitors (VIS)	FTO Ratio	PTO Ratio	ONO Ratio	VIS Ratio	Full Time Equivalent Users	Faucet Minutes per Use	Additional ONO Min per Day	Showers ONO Use per Day	Showers VIS Use per Day	Shower Minutes per Use	FTO Days per Year	PTO Days per Year	ONO Days per Year	VIS Days per Year
City of Newton	2	1-BIGELOW MIDDLE	112	505	0	25	1	0.5	1	0.07	366	0.2	4	1	0	5	180	180	365	180
City of Newton	2	2-BROWN MIDDLE	132	681	0	25	1	0.5	1	0.07	474	0.2	4	1	0	5	180	180	365	180
City of Newton	2	3-OAK HILL MIDDLE	123	547	0	25	1	0.5	1	0.07	398	0.2	4	1	1	5	180	180	365	180
City of Newton	2	4-EDUCATION CENTER	253	50	0	150	1	0.5	1	0.07	288	0.2	4	1	0	5	180	180	365	180
City of Newton	2	5-CITY HALL	180	20	0	100	1	0.5	1	0.07	197	0.2	4	1	1	5	180	180	365	180
City of Newton	2	6-POLICE HQ	30	0	20	20	1	0.5	1	0.07	51	0.2	4	1	1	5	180	180	365	180
City of Newton	2	7-POLICE GARAGE	5	0	0	0	1	0.5	1	0.07	5	0.2	4	1	0	5	180	180	365	180
City of Newton	2	8-POLICE ANNEX	15	0	0	2	1	0.5	1	0.07	15	0.2	4	1	0	5	180	180	365	180
Totals			850	1,803	20	347					1,794									

NOTES:

Note 1 - Based on a 8-hours shift.

Note 2 - Based on a 4-hour shift.

Note 3 - Based on a 10-hour overnight stay.

Note 4 - Based on a 24-minute visit.

Note 5 - Number restroom uses per day from Column K thru N determines the daily faucet uses.

Note 6 - Overnight occupant have additional faucet uses for personal hygiene uses (shaving, brushing, etc) and kitchenette uses.

Note 7 - Number of Overnight Occupant shower uses per day.

Note 8 - Number of shower uses per day for Visitor who do shower on-site. See Column M on Attachment C for percentage of visitors who do shower.

City of Newton, MA
Water Conservation
Attachment D3: Use Profile - Full Time Occupants (FTO)

1	2	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
																	$\frac{[(C \times G) + (D \times H)] \times O \times F}{B \times N \times 0.2 \times O \times M}$		
Facility Name	Project Phase	Building Name	Full-Time Occupants (FTO)	Male	Female	Toilet Count	Toilet Retrofit %	Toilet Uses per Male per Day	Toilet Uses per Female per Day	Urinal Count	Urinal Retrofit %	Urinal Uses per Male per Day	Faucet Count	Faucet Retrofit %	Faucet Uses per Person per Day	FTO Days per Year	FTO Toilet Uses per Year	FTO Urinal Uses per Year	FTO Faucet Minutes per Year
City of Newton	2	1 - BIGELOW MIDDLE	112	56	56	35	100%	1	3	15	100%	2	36	100%	3	180	37,800	22,680	12,096
City of Newton	2	2 - BROWN MIDDLE	132	66	66	59	97%	1	3	30	27%	2	49	88%	3	180	44,550	26,730	14,256
City of Newton	2	3 - OAK HILL MIDDLE	123	62	62	35	97%	1	3	14	79%	2	75	35%	3	180	41,850	25,110	13,284
City of Newton	2	4 - EDUCATION CENTER	253	126	126	14	86%	1	3	2	50%	2	11	100%	3	180	85,050	51,030	27,324
City of Newton	2	5 - CITY HALL	180	108	72	21	76%	1	3	10	80%	2	19	100%	3	180	53,460	43,740	19,440
City of Newton	2	6 - POLICE HQ	30	18	12	12	8%	1	3	6	0%	2	14	100%	3	180	8,910	7,290	3,240
City of Newton	2	7 - POLICE GARAGE	5	5	0	2	100%	3	3	0		0	3	67%	3	180	2,700	0	540
City of Newton	2	8 - POLICE ANNEX	15	8	8	4	0%	3	3	0		0	4	100%	3	180	8,640	0	1,620
		Totals	850	449	402	182	-	-	-	77	-	-	211	-	-	-	282,960	176,580	91,800

City of Newton, MA
Water Conservation
Attachment D4: Use Profile - Part Time Occupants (PTO)

1	2	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
																	$\frac{[(C \times G) + (D \times H)] \times O \times F}{B \times N \times 0.2 \times O \times M}$		
Facility Name	Project Phase	Building Name	Part-Time Occupants (PTO)	Male	Female	Toilet Count	Toilet Retrofit %	Toilet Uses per Male per Day	Toilet Uses per Female per Day	Urinal Count	Urinal Retrofit %	Urinal Uses per Male per Day	Faucet Count	Faucet Retrofit %	Faucet Uses per Person per Day	PTO Days per Year	PTO Toilet Uses per Year	PTO Urinal Uses per Year	PTO Faucet Minutes per Year
City of Newton	2	1 - BIGELOW MIDDLE	505	252	252	35	100%	0	2	15	100%	1	36	100%	2	180	85,050	51,030	27,270
City of Newton	2	2 - BROWN MIDDLE	681	340	340	59	97%	0	2	30	27%	1	49	88%	2	180	114,750	68,850	36,774
City of Newton	2	3 - OAK HILL MIDDLE	547	274	274	35	97%	0	2	14	79%	1	75	35%	2	180	92,475	55,485	29,538
City of Newton	2	4 - EDUCATION CENTER	50	25	25	14	86%	0	2	2	50%	1	11	100%	2	180	8,438	5,063	2,700
City of Newton	2	5 - CITY HALL	20	12	8	21	76%	0	2	10	80%	1	19	100%	2	180	2,970	2,430	1,080
City of Newton	2	6 - POLICE HQ	0	0	0	12	8%	0	0	6	0%	0	14	100%	0	180	0	0	0
City of Newton	2	7 - POLICE GARAGE	0	0	0	2	100%	0	0	0		0	3	67%	0	180	0	0	0
City of Newton	2	8 - POLICE ANNEX	0	0	0	4	0%	0	0	0		0	4	100%	0	180	0	0	0
Totals			1,803	903	899	182	-	-	-	77	-	-	211	-	-	-	303,683	182,858	97,362

City of Newton, MA
Water Conservation
Attachment D5: Use Profile - Overnight Occupants (ONO)

1	2	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V				
																				$\frac{[(C \times G) + (D \times H)] \times R \times F}{C \times K \times R \times J}$				$\frac{B \times N \times 5 \times R \times B \times [(O \times 0.2) + 4] \times R \times P}{M}$			
Facility Name	Project Phase	Building Name	Overnite Occupants (ONO)	Male	Female	Toilet Count	Toilet Retrofit %	Toilet Uses per Male per Day	Toilet Uses per Female per Day	Urinal Count	Urinal Retrofit %	Urinal Uses per Male per Day	Shower Count	Shower Retrofit %	Showers per Person per Day	Faucet Count	Faucet Retrofit %	Faucet Uses per Person per Day	ONO Days per Year	ONO Toilet Uses Per Year	ONO Urinal Uses Per Year	ONO Shower Minutes Per Year	ONO Faucet Minutes Per Year				
City of Newton	2	1 - BIGELOW MIDDLE	0	0	0	35	100%	0	0	15	100%	0	0		0	36	100%	0	365	0	0	0	0				
City of Newton	2	2 - BROWN MIDDLE	0	0	0	59	97%	0	0	30	27%	0	0		0	49	88%	0	365	0	0	0	0				
City of Newton	2	3 - OAK HILL MIDDLE	0	0	0	35	97%	0	0	14	79%	0	4	100%	0	75	35%	0	365	0	0	0	0				
City of Newton	2	4 - EDUCATION CENTER	0	0	0	14	86%	0	0	2	50%	0	0		0	11	100%	0	365	0	0	0	0				
City of Newton	2	5 - CITY HALL	0	0	0	21	76%	0	0	10	80%	0	4	100%	0	19	100%	0	365	0	0	0	0				
City of Newton	2	6 - POLICE HQ	20	12	8	12	8%	1.25	5	6	0%	3.75	4	100%	1	14	100%	5	365	20,075	16,425	36,500	36,500				
City of Newton	2	7 - POLICE GARAGE	0	0	0	2	100%	0	0	0		0	1	100%	0	3	67%	0	365	0	0	0	0				
City of Newton	2	8 - POLICE ANNEX	0	0	0	4	0%	0	0	0		0	0		0	4	100%	0	365	0	0	0	0				
		Totals	20	12	8	182	-	-	-	77	-	-	13	-	-	211	-	-		20,075	16,425	36,500	36,500				

City of Newton, MA
Water Conservation
Attachment D6: Use Profile - Visitors per Day (VIS)

1	2	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	
																					[(C x G) + (D x H)] x S x F		B x O x 5 x S x B x R x 0.2 x S x Q		
																						C x K x S x J		N	
																								x Q	
Facility Name	Project Phase	Building Name	Visitors per Day (VIS)	Male	Female	Toilet Count	Toilet Retrofit %	Toilet Uses per Male per Day	Toilet Uses per Female per Day	Urinal Count	Urinal Retrofit %	Urinal Uses per Male per Day	Shower Count	Shower Retrofit %	% Visitors that Shower	Showers per Person per Day	Faucet Count	Faucet Retrofit %	Faucet Uses per Person per Day	VIS Days per Year	VIS Toilet Uses Per Year	VIS Urinal Uses Per Year	VIS Shower Minutes Per Year	VIS Faucet Minutes Per Year	
City of Newton	2	1 - BIGELOW MIDDLE	25	12	12	35	100%	0.050	0.200	15	100%	0.150	0		0%	0	36	100%	0.20	180	540	324	0	180	
City of Newton	2	2 - BROWN MIDDLE	25	12	12	59	97%	0.050	0.200	30	27%	0.150	0		0%	0	49	88%	0.20	180	540	324	0	180	
City of Newton	2	3 - OAK HILL MIDDLE	25	12	12	35	97%	0.050	0.200	14	79%	0.150	4	100%	0%	1	75	35%	0.20	180	540	324	0	180	
City of Newton	2	4 - EDUCATION CENTER	150	75	75	14	86%	0.050	0.200	2	50%	0.150	0		0%	0	11	100%	0.20	180	3,375	2,025	0	1,080	
City of Newton	2	5 - CITY HALL	100	60	40	21	76%	0.050	0.200	10	80%	0.150	4	100%	0%	1	19	100%	0.20	180	1,980	1,620	0	720	
City of Newton	2	6 - POLICE HQ	20	12	8	12	8%	0.050	0.200	6	0%	0.150	4	100%	0%	1	14	100%	0.20	180	396	324	0	144	
City of Newton	2	7 - POLICE GARAGE	0	0	0	2	100%	0.000	0.000	0		0.000	1	100%	0%	0	3	67%	0.00	180	0	0	0	0	
City of Newton	2	8 - POLICE ANNEX	2	1	1	4	0%	0.200	0.200	0		0.000	0		0%	0	4	100%	0.20	180	72	0	0	14	
		Totals	347	184	160	182	-	-	-	77	-	-	13	-		-	211	-	-		7,443	4,941	0	2,498	

**City of Newton, MA
Water Conservation**

Attachment E1: Water Savings - Summary

1	2	A	B	C	D	E	F	G	H	I	J
F - G											
Facility Name	Project Phase	Building Name	Total Toilet Uses per Year	Total Urinal Uses Per Year	Total Shower Minutes Per Year	Total Faucet Minutes per Year	Total Baseline Consump (kgal)	Total Post Consump (kgal)	Total Savings (kgal)	Total Savings (Therms)	Total Savings (kWh)
City of Newton	2	1 - BIGELOW MIDDLE	123,390	74,034	0	39,546	730	292	437	211	0
City of Newton	2	2 - BROWN MIDDLE	159,840	95,904	0	51,210	863	421	442	238	0
City of Newton	2	3 - OAK HILL MIDDLE	134,865	80,919	0	43,002	748	361	387	78	0
City of Newton	2	4 - EDUCATION CENTER	96,863	58,118	0	31,104	497	229	268	169	0
City of Newton	2	5 - CITY HALL	58,410	47,790	0	21,240	333	145	189	109	0
City of Newton	2	6 - POLICE HQ	29,381	24,039	36,500	39,884	267	167	100	296	0
City of Newton	2	7 - POLICE GARAGE	2,700	0	0	540	12	5	7	2	0
City of Newton	2	8 - POLICE ANNEX	8,712	0	0	1,634	18	15	3	0	219
		Totals	614,161	380,804	36,500	228,160	3,468	1,634	1,834	1,103	219

City of Newton, MA
Water Conservation
Attachment E2: Water Savings - Toilet Savings

1	2	A	B	C	D	E	F	G	H	I	J	K	L
					Note 1	Note 1	Note 1	Note 1	D+E+F+G	Note 2	$((B \times H) \div 1000) + I$	$(C \times H) \div 1000$	J - K
Facility Name	Project Phase	Building Name	Baseline Toilet GPF	Post Toilet GPF	FTO Toilet Uses Per Year	PTO Toilet Uses Per Year	ONO Toilet Uses Per Year	VIS Toilet Uses Per Year	Total Toilet Uses per Year	Baseline Toilet Leaks	Baseline Toilet Consump (kgal)	Post Toilet Consump (kgal)	Toilet Savings (kgal)
City of Newton	2	1 - BIGELOW MIDDLE	3.50	1.60	37,800	85,050	0	540	123,390	14	446	197	248
City of Newton	2	2 - BROWN MIDDLE	3.44	1.60	44,550	114,750	0	540	159,840	23	572	256	316
City of Newton	2	3 - OAK HILL MIDDLE	3.45	1.60	41,850	92,475	0	540	134,865	14	478	216	263
City of Newton	2	4 - EDUCATION CENTER	3.23	1.60	85,050	8,438	0	3,375	96,863	5	318	155	163
City of Newton	2	5 - CITY HALL	3.05	1.60	53,460	2,970	0	1,980	58,410	6	184	93	91
City of Newton	2	6 - POLICE HQ	1.76	1.60	8,910	0	20,075	396	29,381	0	52	47	5
City of Newton	2	7 - POLICE GARAGE	3.50	1.60	2,700	0	0	0	2,700	1	10	4	6
City of Newton	2	8 - POLICE ANNEX	1.60	1.60	8,640	0	0	72	8,712	0	14	14	0
		Totals	-	-	282,960	303,683	20,075	7,443	614,161	63	2,074	983	1,092

Note 1 - Uses per year calculated from the respective 'Use Profile' Attachments.

Note 2 - Leaks based on number of installed toilets X 4% (percent of existing toilet that leak) X 10,000 gallons per leak per year. Converted from gallons to kgals per year.

City of Newton, MA
Water Conservation
Attachment E3: Water Savings - Urinal Savings

1	2	A	B	C	D	E	F	G	H	I	J	K
					Note 1	Note 1	Note 1	Note 1	D+E+F+G	(B x H) ÷ 1000	(C x H) ÷ 1000	I - J
Facility Name	Project Phase	Building Name	Baseline Urinal GPF	Post Urinal GPF	FTO Urinal Uses Per Year	PTO Urinal Uses Per Year	ONO Urinal Uses Per Year	VIS Urinal Uses Per Year	Total Urinal Uses per Year	Baseline Urinal Consump (kgal)	Post Urinal Consump (kgal)	Urinal Savings (kgal)
City of Newton	2	1 - BIGELOW MIDDLE	2.5	1.0	22,680	51,030	0	324	74,034	185	74	111
City of Newton	2	2 - BROWN MIDDLE	1.7	1.3	26,730	68,850	0	324	95,904	163	125	38
City of Newton	2	3 - OAK HILL MIDDLE	2.2	1.0	25,110	55,485	0	324	80,919	176	81	95
City of Newton	2	4 - EDUCATION CENTER	1.8	1.0	51,030	5,063	0	2,025	58,118	102	58	44
City of Newton	2	5 - CITY HALL	2.0	0.8	43,740	2,430	0	1,620	47,790	96	38	57
City of Newton	2	6 - POLICE HQ	1.0	1.0	7,290	0	16,425	324	24,039	24	24	0
City of Newton	2	7 - POLICE GARAGE	0.0	0.0	0	0	0	0	0	0	0	0
City of Newton	2	8 - POLICE ANNEX	0.0	0.0	0	0	0	0	0	0	0	0
		Totals	-	-	176,580	182,858	16,425	4,941	380,804	746	400	346

Note 1 - Uses per year calculated from the respective 'Use Profile' Attachments.

City of Newton, MA
Water Conservation
Attachment E4: Water Savings - Shower Savings

1	2	A	B	C	D	E	F	G	H	I	J	K
					Note 1	Note 1	D + E	(B x F) ÷ 1000	(C x F) ÷ 1000	G - H	Note 2	Note 2
Facility Name	Project Phase	Building Name	Baseline Shower GPM	Post Shower GPM	ONO Shower Minutes Per Year	VIS Shower Minutes Per Year	Total Shower Minutes per Year	Baseline Shower Consump (kgal)	Post Shower Consump (kgal)	Shower Savings (kgal)	Shower Savings (Therms)	Shower Savings (kWh)
City of Newton	2	1 - BIGELOW MIDDLE	0.0	0.0	0	0	0	0	0	0	0	0
City of Newton	2	2 - BROWN MIDDLE	0.0	0.0	0	0	0	0	0	0	0	0
City of Newton	2	3 - OAK HILL MIDDLE	2.5	2.0	0	0	0	0	0	0	0	0
City of Newton	2	4 - EDUCATION CENTER	0.0	0.0	0	0	0	0	0	0	0	0
City of Newton	2	5 - CITY HALL	2.5	2.0	0	0	0	0	0	0	0	0
City of Newton	2	6 - POLICE HQ	2.5	2.0	36,500	0	36,500	91	73	18	88	0
City of Newton	2	7 - POLICE GARAGE	2.5	2.0	0	0	0	0	0	0	0	0
City of Newton	2	8 - POLICE ANNEX	0.0	0.0	0	0	0	0	0	0	0	0
		Totals	-	-	36,500	0	36,500	91	73	18	88	0

Note 1 - Uses per Year in buildings Calculated from the respective 'Use Profile' Attachments.
Note 2 - See Attachment "Building Summary - Energy Savings" for DHW savings calculations.

City of Newton, MA
Water Conservation
Attachment E5: Water Savings - Faucet Savings

1	2	A	B	C	D	E	F	G	H	I	J	K	L	M
					Note 1	Note 1	Note 1	Note 1	D+E+F+G	(B x H) ÷ 1000	(C x H) ÷ 1000	I - J	Note 2	Note 2
Facility Name	Project Phase	Building Name	Baseline Faucet GPM	Post Faucet GPM	FTO Faucet Minutes Per Year	PTO Faucet Minutes Per Year	ONO Faucet Minutes Per Year	VIS Faucet Minutes Per Year	Total Faucet Minutes per Year	Baseline Faucet Consump (kgal)	Post Faucet Consump (kgal)	Faucet Savings (kgal)	Faucet Savings (Therms)	Faucet Savings (kWh)
City of Newton	2	1 - BIGELOW MIDDLE	2.5	0.5	12,096	27,270	0	180	39,546	99	21	78	211	0
City of Newton	2	2 - BROWN MIDDLE	2.5	0.8	14,256	36,774	0	180	51,210	128	40	88	238	0
City of Newton	2	3 - OAK HILL MIDDLE	2.2	1.5	13,284	29,538	0	180	43,002	94	65	29	78	0
City of Newton	2	4 - EDUCATION CENTER	2.5	0.5	27,324	2,700	0	1,080	31,104	78	16	62	169	0
City of Newton	2	5 - CITY HALL	2.5	0.6	19,440	1,080	0	720	21,240	53	13	40	109	0
City of Newton	2	6 - POLICE HQ	2.5	0.6	3,240	0	36,500	144	39,884	100	23	77	208	0
City of Newton	2	7 - POLICE GARAGE	2.5	1.2	540	0	0	0	540	1	1	1	2	0
City of Newton	2	8 - POLICE ANNEX	2.5	0.5	1,620	0	0	14	1,634	4	1	3	0	219
		Totals	-	-	91,800	97,362	36,500	2,498	228,160	557	179	378	1,016	219

Note 1 - Uses per Year in buildings Calculated from the respective 'Use Profile' Attachments.
Note 2 - See Attachment "Building Summary - Energy Savings" for DHW savings calculations.

STEAM TRAP IMPROVEMENTS

Overview

Bigelow Middle School, Brown Middle School, the Education Center, and City Hall each have boilers that generate steam to provide for space heating. An integral component of an efficient steam system include steam traps, which remove condensate from the distribution system and return condensate to the boiler plant. However, older steam traps often fail and allow live steam to pass through the trap into the condensate system, wasting significant energy. NORESKO's experience is that without a comprehensive trap maintenance program, a significant number of traps will not operate properly.

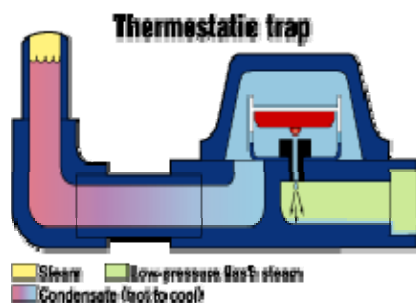


Thermostatic Steam Trap

NORESCO will repair or replace faulty steam traps with new, properly functioning components to improve comfort conditions and reduce thermal energy losses. Further, NORESKO will provide a comprehensive steam trap maintenance program that will help ensure energy savings persist and that traps continue to function properly throughout the contract term.

Detailed Description

Existing System



Each facility has boilers that generate steam for space heating. As the steam in the individual heating systems exchanges its energy for space heating, it condenses back into water. Steam traps capture this condensate after the heat energy has been transferred to the end use. The majority of the traps surveyed were Float and Thermostatic ("F&T") and Thermostatic type traps. Conventional steam traps can fail in the open or closed position. When a steam trap fails in the open position, the energy that was added at the boiler is lost into the condensate

return system. The energy contained in steam is only utilized when it condenses in a heat exchanger (radiator, unit convactor, water heater, AHU coil, etc.) and releases its latent heat in the process. It is at this point the steam trap should allow the condensate into the piped return system where it will begin its journey back to the boiler room. A steam trap that fails in the closed position does not allow the condensate to enter the condensate return system. This condensate will subcool (cool below saturation temperature) in the steam line and form carbonic acid, which will attack the piping and its components, and result in the space underheating.

NORESCO performed a detailed inventory of the piping and steam traps in the selected buildings. A total of four hundred and eighty-nine steam traps were located and indexed, noting

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type, size, and configuration. Notes were recorded concerning the condition of the traps and the related piping.

Unfortunately, because the trap survey was conducted during the summer after the heating season was over, NORESO could not test the traps to assess the condition and failure rate. However, according to City of Newton personnel there is currently no steam trap maintenance program in place at these buildings. Based on our experience at other facilities with similar construction and operation and maintenance practices, NORESO estimates that 5 - 20% (depending on the building) of the steam traps surveyed are in some phase of failure. Savings calculations are based on the following failure rates:

Building	% Failed Blowing	% Failed Leaking
Bigelow Middle School	12%	20%
Brown Middle School	10%	10%
Education Center	5%	5%
City Hall	5%	5%

Recommended Improvements

NORESOS will repair or replace the four hundred eighty-nine identified steam traps at Brown Middle School, the Education Center and City Hall.

Building	Quantity of Existing Traps
Bigelow Middle School	17
Brown Middle School	199
Education Center	101
City Hall	172
TOTAL	489

Maintenance Program

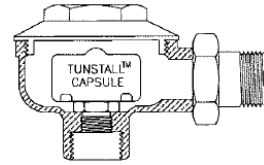
NORESOS will provide an annual steam trap maintenance program for the City of Newton to deliver energy and maintenance savings and reduce the maintenance burden on the facility staff. Beginning in year three and for each year thereafter, NORESOS will:

- Test steam traps annually and tag failed or leaking traps.
- Repair or replace failed or leaking steam traps as required.
- Document results of the testing and repairs in an Annual Report.

The steam trap maintenance program is further described in the section below.

Scope of Work

NORESCO will repair or replace the existing mechanical steam traps with Tunstall (or approved equal) equipment, including all miscellaneous materials required to completely install the steam trap equipment. These materials shall include installation of permanent stainless steel or brass valve tags that uniquely identify each steam trap with a number that can be traced back to the as-built steam trap audit. These materials include, but are not limited to mounting hardware, plumbing pipe, and plumbing fittings.



Tunstall Steam Trap

Exclusions

The following items are excluded:

- NORESOCO assumes that all existing isolation valves are in good working order; replacement of faulty steam distribution and condensate return system isolation valves is not included in the scope of work.
- Painting or patching unless required as a result of damage during installation.

Integration with Existing Systems and Operations

Impact on Facility Operations and Performance

The new steam traps will deliver significant steam energy savings. All work will be done during normal business hours. NORESOCO will coordinate all work with facilities staff to minimize the impact on the building occupants. The direct impact to the building occupants will be proper operation of the heating equipment served by the traps. Traps that failed in the closed position would have left the space feeling cold since steam would not have been able to pass through the coil. Conversely, traps that had been passing steam will leave the spaces overheated. These conditions will be alleviated through the proper operation of the new condensate removal equipment.

Maintenance

In order to sustain the energy savings throughout the contract term, it will be necessary for the steam traps to be periodically inspected and maintained for proper operation.

Customer Training

Customer training and O & M Manuals for this measure will be provided.

Equipment Information

Manufacturer and Type

NORESCO will install conventional mechanical steam traps and components manufactured by Tunstall Associates or approved equal.

- **Tunstall Corporation** 118 Exchange Street, Chicopee, MA 01013 Phone: (413) 594-8695 Fax: (413) 598-8109

Steam Trap Service & Maintenance Program

Beginning in year three, NORESO will test and inspect 489 steam traps installed by NORESO annually for the contract term. The complete results for the year will be published in an Annual Report.

- Trap components to be tested and inspected include: the trap body, nozzles and internal strainer screens; external strainers, including the body, screen and drain valves; and pipe, valves and fittings installed by NORESO.
- Failed traps and trap components will be repaired or replaced following the inspection and resolution published in the Annual Trap Survey Report.

The following table summarizes NORESO's steam trap maintenance and testing program:

Summary of NORESO Steam Trap Maintenance Services

	Years 1-2	Years 3 – 12
Test & Inspect Traps Installed by NORESO		✓
Clean Traps & Strainers Installed by NORESO		✓
Provide Annual Trap Survey Report		✓
Materials & Labor to Repair or Replace Failed Traps	✓	✓
Materials & Labor to Repair or Replace Failed External Strainers, Piping, Valves, and Fittings	Cost +30%	Cost +30%

Operational Tasks

The Steam Trap Maintenance Program includes Survey and Preventive Maintenance only. This program excludes any operational tasks such as daily equipment checks, or equipment scheduling.

Water Chemistry

Steam traps require precise water chemistry to perform effectively. Steam leaks and broken or leaking condensate return lines require the use of excessive make up feed water and can significantly increase the levels of sludge and or scale in the condensate return systems. Any service for steam traps necessitated by inadequate water chemistry or debris in the steam lines will be recognized as a Repair Call and will be billed accordingly.

Service Calls

Service calls are non-scheduled visits conducted during normal business hours that include any system condition, which requires service as determined by the OWNER or NORESO. Service calls for repairs are outside the scope of this maintenance agreement and are billable at the then current NORESO service rate.

EMERGENCY service calls for repairs are outside the Scope of Maintenance and are always billable at the then current NORESO emergency service rate.

General Warranty Conditions

NORESCO will provide a one year workmanship warranty on the Steam Traps installed as part of this project. This warranty covers issues such as improper installation and systemic product failure. In addition to the NORESO warranty listed above, all manufacturers' extended warranties will be passed through to the City of Newton. The warranty period will commence on the date of Substantial Completion.

NORESCO Warranty Responsibilities

NORESCO will provide repair and replacement of failed steam traps installed by NORESO as follows:

Traps	Repair & replacement of Steam Trap Assemblies installed by NORESO, is covered when performed during the annual survey. This warranty excludes External Strainers, Pipes, Valves, fittings and service at any time other than the annual inspection.
External Strainers, Pipes, Valves, & Fittings	One year warranty on external strainers, pipes, valves and fittings installed by NORESO.

Warranty coverage is subject to certain limitations as listed in the *Service & Maintenance Program Limitations* section.

Consumables

NORESCO's maintenance program includes the cost of minor consumables as part of the expected maintenance and inspection cycle. For year one, NORESO will absorb the cost of all consumables installed by NORESO under the *Workmanship Warranty*. Starting in year two, NORESO will assist the City with the procurement of any Warranty Claim items such as steam traps. However, for items not under warranty - *Pipes, Valves, Nipples, Strainers, Strainer Baskets, etc.* – NORESO will invoice the City at the NORESO rate of parts plus 30%.

NORESCO Contacts

NORESCO contacts will be available by phone 24 hours per day throughout the contract term.

NORESCO (24/7) Service number:

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Toll Free Nationwide Number: 877-NORESCO or 877-667-3726
 Service Fax Number: 508-870-1732
 Main Office Number: 508-614-1000

City of Newton Responsibilities

The City shall be responsible for the following:

- Ensure that all systems are operated per the NORESO design specifications.
- Inform the NORESO contact immediately in the event of any situation requiring NORESO's attention, such as abnormal equipment readings or alarm conditions.
- Provide first response for any exigent circumstance. Use accepted practices in the handling of any emergency requiring action prior to the arrival of NORESO staff or its agents. Contact NORESO O&M personnel as soon as possible for further instructions.
- Restrict access to equipment installed in non-public locations to authorized personnel only.
- Perform housekeeping duties.
- Correct leaks in a timely manner in roofs, building penetrations, or open or closed systems for which NORESO does not have complete responsibility or that could affect equipment performance and energy savings.
- Engage NORESO, in advance, to review and approve any system changes that may result in adverse effects on the performance or reliability of NORESO-installed equipment or systems.
- Provide escorts to NORESO and its agents in a timely manner and as necessary for completing the O&M tasks.
- Provide NORESO staff access to all machine areas. NORESO's subcontractors shall be granted timely access to respond to service calls and effect repairs.
- Provide security as may be necessary for service calls or repair work in unsafe areas or after hours. Work that cannot be performed due to unsafe conditions may be postponed until such time as reasonable safety can be assured.
- Provide first response for all trouble, or service calls.

Service & Maintenance Program Limitations

NORESCO will provide Long-Term Maintenance and Service coverage for certain equipment installed under this contract for the contract term as described above. In general, this provides for the maintenance, repair and replacement of installed equipment that fails. However, this coverage has limitations. NORESO is not liable for problems that result from an event that is out of NORESO's control. This includes all costs of service calls, repairs, or lost savings resulting from any failure that is determined to have been caused by:

- An item listed under City of Newton Responsibilities herein or in the O&M Manuals not being fulfilled.
- A problem that is unrelated to NORESO responsibilities.

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- Inadequate chemical water treatment, corrosion, scale or other debris in the steam or water lines
- An act of any persons other than NORESO staff or its agents.
- A problem that proves to be unrelated to a defect in manufacturing or installation.

At the City's request, NORESO will provide an estimate to perform the required repairs for situations falling in this category. The customer will be invoiced at the then current NORESO rates. In the event of a service call that is determined to fall in this category, the City will be invoiced for all costs incurred.

The City will be invoiced for services rendered that are determined to be caused by items excluded from NORESO's responsibilities. NORESO's responsibilities are limited to the equipment installed as part of this project.

The City is responsible for any cost or negative saving impact resulting from the City altering the NORESO installed systems or operating parameters.

***Steam Trap Improvements
I. Energy Savings Calculations***

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NORESCO

CITY OF NEWTON

Newton ESPC Phase 2

City Hall

PROJECTED LOSSES FOR EXISTING MECHANICAL STEAM TRAPS (Failure Projected Over Total Trap Population)

BASIS:		CALCULATIONS:	
1. Traps Failed Open (% of Population):	5%	1. Orifice Steam Capacity (Napiers Equation) = 40.4 x (Orifice Dia) ² x Pabsolute.	
2. Traps Leaking (% of Population):	5%	2. Annual Losses in MMBtu = (Annual Losses in Mlb) x (Latent Heat of Steam @ Ref. Pressure)/1,000	
3. Failed Open Traps Blow at (% of Orifice Capacity):	50%	3. Steam Consumption on comfort heating based on Oct 15 - Apr 15 heating season and timeclock schedule	
4. Leaking Traps Blow at (% of Orifice Capacity):	20%	4. Boiler Efficiency = 80%	
5. Number of Traps :	172		

hr/yr	STEAM PRESSURE, psig	TYPE OF TRAP	ORIFICE DIAMETER, in.	STEAM CAPACITY, lb/hr	QTY OF TRAPS	QTY OF TRAPS BLOWING, 5% OF TOTAL	QTY OF TRAPS LEAKING, 5% OF TOTAL	50% BLOWING LOSS, lb/hr	20% LEAKING LOSS, lb/hr	TOTAL STEAM LOSS BY TRAPS, lb/hr	ANNUAL STEAM LOSS, BY TRAPS, Mlb/yr	ANNUAL STEAM LOSS, BY TRAPS, MMBtu/yr	ANNUAL FUEL SAVINGS TRAPS, THERMS/yr
2,613	5	2" FT	0.500	198.97	2	0	0	0.0	0.0	0.0	0.0	0.00	0.00
2,613	5	1 1/2" FT	0.500	198.97	2	0	0	0.0	0.0	0.0	0.0	0.00	0.00
2,613	5	1" FT	0.218	37.82	3	0	0	0.0	0.0	0.0	0.0	0.00	0.00
2,613	5	1" T	0.342	93.09	24	1	1	46.5	18.6	65.2	170.3	163.46	2043.24
2,613	5	3/4" T	0.238	45.08	138	7	7	157.8	63.1	220.9	577.2	554.13	6926.57
2,613	5	1/2" T	0.171	23.27	3	0	0	0.0	0.0	0.0	0.0	0.00	0.00
					172	8	8	204.3	81.7	286.1	747	718	8,970

NORESCO

CITY OF NEWTON

Newton ESPC Phase 2

Education Center

PROJECTED LOSSES FOR EXISTING MECHANICAL STEAM TRAPS

(Failure Projected Over Total Trap Population)

<u>BASIS:</u>		<u>CALCULATIONS:</u>	
1. Traps Failed Open (% of Population):	5%	1. Orifice Steam Capacity (Napiers Equation) = 40.4 x (Orifice Dia) ² x Pabsolute.	
2. Traps Leaking (% of Population):	5%	2. Annual Losses in MMBtu = (Annual Losses in Mlb) x (Latent Heat of Steam @ Ref. Pressure)/1,000	
3. Failed Open Traps Blow at (% of Orifice Capacity):	50%	3. Steam Consumption on comfort heating based on Oct 15 - Apr 15 heating season and timeclock schedule	
4. Leaking Traps Blow at (% of Orifice Capacity):	20%	4. Boiler Efficiency = 80%	
5. Number of Traps :	102		

hr/yr	STEAM PRESSURE, psig	TYPE OF TRAP	ORIFICE DIAMETER, in.	STEAM CAPACITY, lb/hr	QTY OF TRAPS	QTY OF TRAPS BLOWING, 5% OF TOTAL	QTY OF TRAPS LEAKING, 5% OF TOTAL	50% BLOWING LOSS, lb/hr	20% LEAKING LOSS, lb/hr	TOTAL STEAM LOSS BY TRAPS, lb/hr	ANNUAL STEAM LOSS, BY TRAPS, Mlb/yr	ANNUAL STEAM LOSS, BY TRAPS, MMBtu/yr	ANNUAL FUEL SAVINGS TRAPS, THERMS/yr
1,872	5	2" FT	0.500	198.97	3	0	0	0.0	0.0	0.0	0.0	0.00	0.00
1,872	5	1" T	0.342	93.09	2	0	0	0.0	0.0	0.0	0.0	0.00	0.00
1,872	5	3/4" T	0.238	45.08	88	4	4	90.2	36.1	126.2	236.3	226.85	2835.61
1,872	5	1/2" T	0.171	23.27	9	0	0	0.0	0.0	0.0	0.0	0.00	0.00
					102	4	4	90.2	36.1	126.2	236	227	2,836

NORES CO

CITY OF NEWTON
Newton ESPC Phase 2
Brown Middle School

PROJECTED LOSSES FOR EXISTING MECHANICAL STEAM TRAPS
(Failure Projected Over Total Trap Population)

<u>BASIS:</u>		<u>CALCULATIONS:</u>
1. Traps Failed Open (% of Population):	10%	1. Orifice Steam Capacity (Napiers Equation) = 40.4 x (Orifice Dia) ² x Pabsolute.
2. Traps Leaking (% of Population):	10%	2. Annual Losses in MMBtu = (Annual Losses in Mlb) x (Latent Heat of Steam @ Ref. Pressure)/1,000
3. Failed Open Traps Blow at (% of Orifice Capacity):	50%	3. Steam Consumption on comfort heating based on Oct 15 - Apr 15 heating season and timeclock schedule
4. Leaking Traps Blow at (% of Orifice Capacity):	20%	4. Boiler Efficiency = 60%
5. Number of Traps :	196	

	STEAM PRESSURE, psig	TYPE OF TRAP	ORIFICE DIAMETER, in.	STEAM CAPACITY, lb/hr	QTY OF TRAPS	QTY OF TRAPS BLOWING, 10% OF TOTAL	QTY OF TRAPS LEAKING, 10% OF TOTAL	50% BLOWING LOSS, lb/hr	20% LEAKING LOSS, lb/hr	TOTAL STEAM LOSS BY TRAPS, lb/hr	ANNUAL STEAM LOSS, BY TRAPS, Mlb/yr	ANNUAL STEAM LOSS, BY TRAPS, MMBtu/yr	ANNUAL FUEL SAVINGS TRAPS, THERMS/yr
1,872	5	2" FT	0.500	198.97	5	1	1	99.5	39.8	139.3	260.7	250.30	3128.76
1,872	5	1-1/2" FT	0.500	198.97	2	0	0	0.0	0.0	0.0	0.0	0.00	0.00
1,872	5	1-1/4" FT	0.500	198.97	7	1	1	99.5	39.8	139.3	260.7	250.30	3128.76
1,872	5	1" FT	0.218	37.82	9	1	1	18.9	7.6	26.5	49.6	47.58	594.77
1,872	5	1" T	0.342	93.09	1	0	0	0.0	0.0	0.0	0.0	0.00	0.00
1,872	5	3/4" T	0.238	45.08	165	17	17	383.2	153.3	536.5	1004.3	964.11	12051.35
1,872	5	1/2" T	0.171	23.27	7	1	1	11.6	4.7	16.3	30.5	29.28	365.95
					196	21	21	612.7	245.1	857.8	1,606	1,542	19,270

NORESCO

CITY OF NEWTON

Newton ESPC Phase 2

Bigelow Middle School

PROJECTED LOSSES FOR EXISTING MECHANICAL STEAM TRAPS

(Failure Projected Over Total Trap Population)

<u>BASIS:</u>		<u>CALCULATIONS:</u>	
1. Traps Failed Open (% of Population):	12%	1. Orifice Steam Capacity (Napiers Equation) = 40.4 x (Orifice Dia) ² x Pabsolute.	
2. Traps Leaking (% of Population):	20%	2. Annual Losses in MMBtu = (Annual Losses in Mlb) x (Latent Heat of Steam @ Ref. Pressure)/1,000	
3. Failed Open Traps Blow at (% of Orifice Capacity):	50%	3. Steam Consumption on comfort heating based on Oct 15 - Apr 15 heating season and timeclock schedule	
4. Leaking Traps Blow at (% of Orifice Capacity):	20%	4. Boiler Efficiency = 65%	
5. Number of Traps :	10		

hr/yr	STEAM PRESSURE, psig	TYPE OF TRAP	ORIFICE DIAMETER, in.	STEAM CAPACITY, lb/hr	QTY OF TRAPS	QTY OF TRAPS BLOWING, 12% OF TOTAL	QTY OF TRAPS LEAKING, 20% OF TOTAL	50% BLOWING LOSS, lb/hr	20% LEAKING LOSS, lb/hr	TOTAL STEAM LOSS BY TRAPS, lb/hr	ANNUAL STEAM LOSS, BY TRAPS, Mlb/yr	ANNUAL STEAM LOSS, BY TRAPS, MMBtu/yr	ANNUAL FUEL SAVINGS TRAPS, THERMS/yr
2,002	5	2" FT	0.500	198.97	4	0	1	0.0	39.8	39.8	79.7	76.48	956.01
2,002	5	1-1/4" FT	0.500	198.97	2	0	0	0.0	0.0	0.0	0.0	0.00	0.00
2,002	5	1" FT	0.218	37.82	3	0	1	0.0	7.6	7.6	15.1	14.54	181.73
2,002	5	3/4" FT	0.218	37.82	1	0	0	0.0	0.0	0.0	0.0	0.00	0.00
					10	0	2	0.0	47.4	47.4	95	91	1,138

***Steam Trap Upgrades
II. Steam Trap Audit***

City of Newton - Phase 2 Detailed Energy Audit

Steam Trap Audit

	Building	Location	Service	Steam Trap Type	Qty	Line Size	Notes
1	Bigelow	Boiler Room	Boiler Supply Header Drip	Float & Thermostatic	1	1"	Sarco
2	Bigelow	Boiler Room	Small Heat Exchanger Main Line Drip	Float & Thermostatic	2	3/4"	Sarco
3	Bigelow	Boiler Room	Small Heat Exchanger Condensate Return	Float & Thermostatic	1	3/4"	Hoffman FT015H-3
4	Bigelow	Boiler Room	End of Main Drip	Float & Thermostatic	2	3/4"	Sarco
5	Bigelow	Boiler Room	Hot Water Storage Tank Main Drip	Float & Thermostatic	2	3/4"	Sarco
6	Bigelow	Boiler Room	Hot Water Storage Tank Condensate Return	Float & Thermostatic	2	1-1/4"	Sarco
7	Bigelow	Boiler Room	Heat Exchanger Main Drip	Float & Thermostatic	2	1"	Sarco
8	Bigelow	Boiler Room	Heat Exchanger Condensate Return	Float & Thermostatic	4	2"	Sarco
9	Bigelow	Boiler Room	Carrier Air Handler	Float & Thermostatic	1	3/4"	Barnes & Jones
10	Brown	Boiler Room	Steam Supply Header	Float & Thermostat	2	2"	Barnes & Jones T45
11	Brown	Boiler Room	Makeup Water	Float & Thermostat	4	1"	Barnes & Jones T42
12	Brown	Boiler Room	Makeup Water	Float & Thermostat	2	3/4"	Barnes & Jones T41
13	Brown	Boiler Room	End of Main Drip	Float & Thermostat	3	2"	Hoffman F7015H
14	Brown	Boiler Room	Condensate Storage Tanks	Float & Thermostat	2	1-1/4"	Barnes & Jones T43
15	Brown	Boiler Room	End of Main Drip	Thermostatic	1	3/4"	
16	Brown	Basment Custodain Storage	Fin Tube Radiation	Thermostatic	1	1/2"	
17	Brown	Generator Room	Fin Tube Radiation	Thermostatic	1	1/2"	

City of Newton - Phase 2 Detailed Energy Audit

Steam Trap Audit

	Building	Location	Service	Steam Trap Type	Qty	Line Size	Notes
18	Brown	Gas Meter Room	Fin Tube Radiation	Thermostatic	1	1/2"	
19	Brown	Gas Meter Room	Fin Tube Radiation	Thermostatic	1	3/4"	
20	Brown	Bathrooms	Convactor	Thermostatic	8	3/4"	
21	Brown	300 / Receiving	Ceiling Cabinet Heater	Thermostatic	1	1"	Ceiling Cabinet Heater
22	Brown	300 / Receiving	Ceiling Cabinet Heater	Thermostatic	1	3/4"	Ceiling Cabinet Heater
23	Brown	300 / Receiving	Wall Mounted Cabinet Heater	Thermostatic	1	1/2"	Vertical Cabinet Heater
24	Brown	Cafeteria	Fin Tube Radiation	Thermostatic	7	3/4"	Traps not visible
25	Brown	109	Fin Tube Radiation	Thermostatic	3	3/4"	
26	Brown	111	Convactor	Thermostatic	1	3/4"	
27	Brown	112	Convactor	Thermostatic	1?	3/4"	No Access
28	Brown	Hallway Outside 112	Convactor	Thermostatic	1	3/4"	
29	Brown	Study Hall	Fin Tube Radiation	Thermostatic	1	3/4"	Valve not visible
30	Brown	Assistant Principal	Convactor	Thermostatic	2	3/4"	
31	Brown	114	Convactor	Thermostatic	1	3/4"	
32	Brown	116	Convactor	Thermostatic	1	1/2"	
33	Brown	Nurses Office	Convactor	Thermostatic	2	1/2"	
34	Brown	Main Office	Convactor	Thermostatic	4	3/4"	

City of Newton - Phase 2 Detailed Energy Audit

Steam Trap Audit

	Building	Location	Service	Steam Trap Type	Qty	Line Size	Notes
35	Brown	Stairwells	Convactor	Thermostatic	6	3/4"	
36	Brown	Pupil Services / 119	6 Convectors, 1 Unit Vent	Thermostatic	7	3/4"	
37	Brown	Cafeteria Office	Convactor	Thermostatic	1	3/4"	
38	Brown	Cafeteria office locker	Convactor	Thermostatic	1	3/4"	
39	Brown	122	Convactor, Unit Vent	Thermostatic	2	3/4"	
40	Brown	123	Convactor	Thermostatic	1	3/4"	
41	Brown	Multimedia Center / 124	Convactor, Unit Vent	Thermostatic	2	3/4"	
42	Brown	Gym Hallway	Fin Tube Radiation	Thermostatic	6	3/4"	
43	Brown	Gym Office	Convactor	Thermostatic	3	3/4"	
44	Brown	125	Convactor	Thermostatic	2	3/4"	
45	Brown	126	Convactor	Thermostatic	1	3/4"	
46	Brown	127	Convactor, Unit Vent	Thermostatic	2	3/4"	
47	Brown	128	Convactor, Unit Vent	Thermostatic	2	3/4"	
48	Brown	129	Convactor, Unit Vent	Thermostatic	2	3/4"	
49	Brown	130	Convactor, Unit Vent	Thermostatic	2	3/4"	
50	Brown	131	Convactor, Unit Vent	Thermostatic	2	3/4"	
51	Brown	132	Convactor, Unit Vent	Thermostatic	2	3/4"	

City of Newton - Phase 2 Detailed Energy Audit

Steam Trap Audit

	Building	Location	Service	Steam Trap Type	Qty	Line Size	Notes
52	Brown	Boys Locker Room	2 Convectors, Unit Vent, Fin Tube	Thermostatic	4	3/4"	
53	Brown	Girls Locker Room	Convector	Thermostatic	1	3/4"	
54	Brown	Outside 132	Convector	Thermostatic	1	3/4"	
55	Brown	134	2 Convectors, Unit Vent	Thermostatic	3	3/4"	
56	Brown	133	Convector, Unit Vent	Thermostatic	2	3/4"	
57	Brown	136	Convector, Unit Vent	Thermostatic	2	3/4"	
58	Brown	137	Unit Vent	Thermostatic	1	3/4"	
59	Brown	139	Unit Vent	Thermostatic	1	3/4"	
60	Brown	142	Prop. Heater	Thermostatic	1	3/4"	
61	Brown	144	Fin Tube Radiation	Thermostatic	1	3/4"	
62	Brown	146	Ceiling Cabinet Heater	Thermostatic	1	3/4"	
63	Brown	147	Convector, Unit Vent	Thermostatic	2	3/4"	
64	Brown	148	Convector, Unit Vent	Thermostatic	2	3/4"	
65	Brown	150	Unit Vent	Thermostatic	1	3/4"	
66	Brown	152	Unit Vent	Thermostatic	1	3/4"	
67	Brown	154	Prop. Heater	Float & Thermostat	1	3/4"	
68	Brown	154	Fin Tube Radiation	Thermostatic	1	3/4"	

City of Newton - Phase 2 Detailed Energy Audit

Steam Trap Audit

	Building	Location	Service	Steam Trap Type	Qty	Line Size	Notes
69	Brown	155	Fin Tube Radiation	Thermostatic	1	3/4"	
70	Brown	157	Unit Vent	Thermostatic	1	3/4"	
71	Brown	158	2 Unit Vents, Fin Tube, Convactor	Thermostatic	4	3/4"	
72	Brown	159	Unit Vent	Thermostatic	1	3/4"	
73	Brown	Penthouse 1	Heating & Ventilating Units	Thermostatic	3	1-1/4"	Barnes & Jones T43
74	Brown	Penthouse 1	End of Main Drip	Thermostatic	1	3/4"	Barnes & Jones T41
75	Brown	Penthouse 1	Fin Tube Radiation	Thermostatic	1	3/4"	
76	Brown	Penthouse 2	Heating & Ventilating Units	Thermostatic	2	1-1/4"	Barnes & Jones T43
77	Brown	Penthouse 2	End of Main Drip	Thermostatic	1	3/4"	Barnes & Jones T41
78	Brown	Penthouse 2	Fin Tube Radiation	Thermostatic	1	3/4"	
79	Brown	Gym Storage	Heating & Ventilating Units	Float & Thermostat	1	1-1/2"	Barnes & Jones T44
80	Brown	Under 1st Floor Stairs	Heating & Ventilating Units	Float & Thermostat	1	1"	Barnes & Jones T42
81	Brown	2nd Floor Mechanical Room	Heating & Ventilating Units	Float & Thermostat	1	1"	Barnes & Jones T42
82	Brown	2nd Floor Mechanical Room	Fin Tube Radiation	Thermostatic	1	3/4"	
83	Brown	201	Unit Vent	Thermostatic	1	3/4"	
84	Brown	202	Unit Vent, Fin Tube, Convactor	Thermostatic	3	3/4"	
85	Brown	203	Unit Vent	Thermostatic	1	3/4"	
86	Brown	204	Convactor, Unit Vent	Thermostatic	2	3/4"	
87	Brown	205	Convactor	Thermostatic	1	3/4"	

City of Newton - Phase 2 Detailed Energy Audit

Steam Trap Audit

	Building	Location	Service	Steam Trap Type	Qty	Line Size	Notes
88	Brown	206	Convactor, Unit Vent	Thermostatic	2	3/4"	
89	Brown	207	Convactor, Unit Vent	Thermostatic	2	3/4"	
90	Brown	208	Convactor, Unit Vent	Thermostatic	2	3/4"	
91	Brown	209	Convactor	Thermostatic	1	3/4"	
92	Brown	210	Convactor, Unit Vent	Thermostatic	2	3/4"	
93	Brown	211	Convactor	Thermostatic	1	3/4"	
94	Brown	212	Convactor, Unit Vent	Thermostatic	2	3/4"	
95	Brown	213	Convactor, Unit Vent	Thermostatic	2	3/4"	
96	Brown	215	Convactor, Unit Vent	Thermostatic	2	3/4"	
97	Brown	216	Convactor, Unit Vent	Thermostatic	2	3/4"	
98	Brown	217	Convactor, Unit Vent	Thermostatic	2	3/4"	
99	Brown	218	Unit Vent	Thermostatic	1	3/4"	
100	Brown	219	Convactor, Unit Vent	Thermostatic	2	3/4"	
101	Brown	220	Convactor, Unit Vent	Thermostatic	2	3/4"	
102	Brown	221	Convactor, Unit Vent	Thermostatic	2	3/4"	
103	Brown	222	Convactor, Unit Vent	Thermostatic	2	3/4"	
104	Brown	223	Convactor, Unit Vent	Thermostatic	2	3/4"	
105	Brown	224	Convactor, Unit Vent	Thermostatic	2	3/4"	
106	Brown	225	Convactor, Unit Vent	Thermostatic	2	3/4"	
107	Brown	227	Convactor, Unit Vent	Thermostatic	2	3/4"	
108	Brown	Outside 227	Convactor	Thermostatic	1	3/4"	
109	Brown	228	Unit Vent	Thermostatic	1	3/4"	
110	Brown	Outside 229A	Convactor	Float & Thermostat	1	1"	Barnes & Jones T42
111	Brown	230	Unit Vent, Fin Tube	Thermostatic	2	3/4"	
112	Brown	231	Unit Vent	Thermostatic	1	3/4"	
113	Brown	232	Unit Vent	Thermostatic	1	3/4"	
114	Brown	Outside 232	Convactor	Float & Thermostat	1	1"	Barnes & Jones T42
115	Brown	Auditorium	Fin Tube Radiation	Thermostatic	1	3/4"	
116	Brown	Auditorium	End of Main Drip	Float & Thermostat	1	3/4"	Barnes & Jones T41
117	Brown	Auditorium	Heating & Ventilating Units	Float & Thermostat	1	1"	Barnes & Jones T42
118	Brown	Auditorium	Heating & Ventilating Units	Float & Thermostat	1	1-1/2"	Barnes & Jones T44
119	City Hall	Planning & Development	Convactor	Thermostatic	4	1"	1" Thermostatic = 24
120	City Hall	Outside Boiler Room	Convactor	Thermostatic	3	1"	3/4" Thermostatic = 138

City of Newton - Phase 2 Detailed Energy Audit

Steam Trap Audit

	Building	Location	Service	Steam Trap Type	Qty	Line Size	Notes
121	City Hall	Outside Boiler Room	Convactor	Thermostatic	3	1/2"	1/2" Thermostatic = 3
122	City Hall	Main Lobby	Convactor	Thermostatic	3	3/4"	
123	City Hall	Archive Rooms	Convactor	Thermostatic	14	1"	
124	City Hall	Boiler Room	Condensate Reciever	Float & Thermostatic	2	2"	2" F&T = 2
125	City Hall	Boiler Room	Steam Supply Header	Float & Thermostatic	2	1-1/2"	1-1/2" F&T = 2
126	City Hall	Boiler Room	End of main drip	Float & Thermostatic	3	1"	1" F&T = 3
127	City Hall	Bathrooms	Convactor	Thermostatic	10	3/4"	
128	City Hall	Stairwells	Convactor	Thermostatic	6	3/4"	
129	City Hall	100 - Veteran's Board	Convactor	Thermostatic	1	3/4"	
130	City Hall	101 - Clerk's Office	3 Convectors, 1 Unit Vent	Thermostatic	4	3/4"	
131	City Hall	102 - Public Works	Convactor	Thermostatic	4	3/4"	
132	City Hall	104 - Engineering	Convactor	Thermostatic	11	3/4"	
133	City Hall	105 - Water	Convactor	Thermostatic	4	3/4"	
134	City Hall	106 - Election Board	Convactor	Thermostatic	2	3/4"	
135	City Hall	107 - Information Tech	Convactor	Thermostatic	9	3/4"	
136	City Hall	108 - Accounting	Convactor	Thermostatic	5	3/4"	
137	City Hall	115 - Parking	Convactor	Thermostatic	7	3/4"	
138	City Hall	116 - Assessors	Convactor	Thermostatic	4	3/4"	
139	City Hall	116A - Auto Excise	Convactor	Thermostatic	2	3/4"	
140	City Hall	Legion Hall	Convactor	Thermostatic	2	3/4"	
141	City Hall	Weights & Measures	Convactor	Thermostatic	1	3/4"	
142	City Hall	202 - Conference	Convactor	Thermostatic	1	3/4"	
143	City Hall	203 -	Convactor	Thermostatic	1	3/4"	
144	City Hall	204 - Purchasing	Convactor	Thermostatic	4	3/4"	Disconnected
145	City Hall	209 -	Convactor	Thermostatic	2	3/4"	
146	City Hall	214 - Law Dept.	Convactor	Thermostatic	10	3/4"	
147	City Hall	218 - HR	Convactor	Thermostatic	5	3/4"	
148	City Hall	220 - MIS Training	Convactor	Thermostatic	4	3/4"	
149	City Hall	222 - Conference	Convactor	Thermostatic	1	3/4"	
150	City Hall	Inspector's Office	Convactor	Thermostatic	10	3/4"	
151	City Hall	Mayor's Office	Convactor	Thermostatic	9	3/4"	
152	City Hall	Aldermanic Chambers	Convactor	Thermostatic	6	3/4"	
153	City Hall	War Memorial	Convactor	Thermostatic	10	3/4"	
154	City Hall	Attic	Convactor	Thermostatic	3	1"	

City of Newton - Phase 2 Detailed Energy Audit

Steam Trap Audit

	Building	Location	Service	Steam Trap Type	Qty	Line Size	Notes
155	Ed Center	Boiler Room	Condensate Reciever	Float & Thermostatic	2	2"	Barnes & Jones FT2015-8. Rebuilt by Frasier Eng. 3/6/2009
156	Ed Center	Boiler Room	End of Main Drip	Thermostatic	1	1"	Hoffman No. 90
157	Ed Center	Boiler Room	Condensate Storage Tank	Float & Thermostatic	1	2"	Barnes & Jones T45. Abandoned?
158	Ed Center	100	Iron Wall Radiator	Thermostatic	1	3/4"	Disconnected
159	Ed Center	101	Iron Wall Radiator	Thermostatic	2	3/4"	Disconnected
160	Ed Center	102	Iron Wall Radiator	Thermostatic	2	3/4"	Disconnected
161	Ed Center	104	Iron Wall Radiator	Thermostatic	2	3/4"	Locked, No Access
162	Ed Center	Hallway Outside 108	Iron Radiator	Thermostatic	1	3/4"	
163	Ed Center	108	Convactor	Thermostatic	2	3/4"	
164	Ed Center	110	Convactor	Thermostatic	1	3/4"	Wall Iron behind cabinet. Trap not visible.
165	Ed Center	110A	Convactor	Thermostatic	1	3/4"	
166	Ed Center	Hallway Outside Mail	Convactor	Thermostatic	1	3/4"	
167	Ed Center	112	Convactor	Thermostatic	4	3/4"	
168	Ed Center	112	Convactor	Thermostatic	1	1/2"	
169	Ed Center	Hallway Outside 119	Convactor	Thermostatic	1	3/4"	
170	Ed Center	120	Convactor	Thermostatic	1	3/4"	behind cabinet. Trap not visible
171	Ed Center	122	Convactor	Thermostatic	1	3/4"	behind cabinet. Trap not visible
172	Ed Center	124	Convactor	Thermostatic	2	3/4"	Traps not visible.
173	Ed Center	127	Convactor	Thermostatic	2	3/4"	Behind millwork.
174	Ed Center	200	Convactor	Thermostatic	2	3/4"	
175	Ed Center	201	Convactor	Thermostatic	1	1"	
176	Ed Center	201	Convactor	Thermostatic	2	3/4"	1 unit disconnected
177	Ed Center	202	Convactor	Thermostatic	1	1/2"	
178	Ed Center	203	Convactor	Thermostatic	1	3/4"	
179	Ed Center	204	Convactor	Thermostatic	1	3/4"	
180	Ed Center	205	Convactor	Thermostatic	3	3/4"	
181	Ed Center	206	Convactor	Thermostatic	1	3/4"	
182	Ed Center	Hallway Outside 208	Convactor	Thermostatic	1	3/4"	
183	Ed Center	208	Convactor	Thermostatic	2	3/4"	
184	Ed Center	209	Convactor	Thermostatic	2	3/4"	Locked
185	Ed Center	210	Convactor	Thermostatic	2	3/4"	
186	Ed Center	211	Convactor	Thermostatic	4	3/4"	

City of Newton - Phase 2 Detailed Energy Audit

Steam Trap Audit

	Building	Location	Service	Steam Trap Type	Qty	Line Size	Notes
187	Ed Center	212	Convactor	Thermostatic	2	3/4"	
188	Ed Center	214	Convactor	Thermostatic	2	3/4"	
189	Ed Center	Bathrooms	Convactor	Thermostatic	2	3/4"	
190	Ed Center	215	Convactor	Thermostatic	2	3/4"	
191	Ed Center	Hallway Outside 218	Convactor	Thermostatic	1	3/4"	
192	Ed Center	217	Convactor	Thermostatic	1	3/4"	
193	Ed Center	218	Convactor	Thermostatic	3	3/4"	
194	Ed Center	219	Convactor	Thermostatic	2	3/4"	
195	Ed Center	317	Convactor	Thermostatic	2	3/4"	
196	Ed Center	320	Convactor	Thermostatic	5	3/4"	
197	Ed Center	315	Convactor	Thermostatic	3	3/4"	
198	Ed Center	314	Convactor	Thermostatic	1	3/4"	
199	Ed Center	312	Convactor	Thermostatic	1	3/4"	
200	Ed Center	310	Convactor	Thermostatic	1	3/4"	
201	Ed Center	309	Convactor	Thermostatic	1	3/4"	
202	Ed Center	311	Convactor	Thermostatic	1	3/4"	
203	Ed Center	308	Convactor	Thermostatic	2	3/4"	
204	Ed Center	307	Convactor	Thermostatic	1	3/4"	
205	Ed Center	305/303	Convactor	Thermostatic	2	3/4"	1 Disconnected
206	Ed Center	304	Convactor	Thermostatic	1	3/4"	
207	Ed Center	306	Convactor	Thermostatic	1	3/4"	
208	Ed Center	302	Convactor	Thermostatic	1	3/4"	
209	Ed Center	301	Convactor	Thermostatic	1	3/4"	
210	Ed Center	300	Convactor	Thermostatic	3	3/4"	
211	Ed Center	Stairwells	Convactor	Thermostatic	7	1/2"	

THERMOSTATIC RADIATOR VALVES

Overview

A significant number of the steam radiators and convectors at the City's buildings do not have operable manual shutoff valves and/or have failed thermostatic or pneumatic control valves. The majority of the spaces in these buildings that are prone to overheating have these valves on their heating system emitters. As a remedy, occupants open windows or doors, or run the air conditioning to control the space temperatures. This behavior results in substantial energy losses.



Thermostatic Radiator Valve

NORESCO will install new thermostatic radiator valves (TRVs) at Brown Middle School, the Education Center, and at City Hall to provide occupants with the ability to manually adjust and automatically regulate individual emitter heating output. This ECM will reduce heating and cooling energy consumption while significantly improving occupant comfort by allowing for greater space temperature control.

Detailed Description

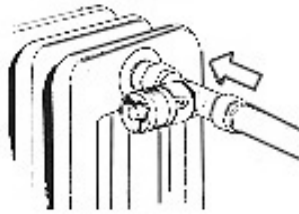
Existing System

The steam radiators and convectors (emitters) generally have two types of individual control valves – pneumatic and thermostatic. Most of the control valves are pneumatic, which are in poor condition and fail in the open position. Some of the radiators and convectors have a combination of manual valves and/or thermostatic valves, many of which also are in poor condition or have failed. The majority of the spaces that are overheating are doing so because they cannot be controlled. As a result, occupants use windows to control the overheating - resulting in wasted energy. In some cases, mechanical air conditioning is being used to keep space temperatures tolerable, even during the winter.

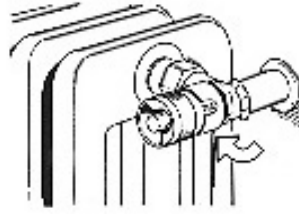
Recommended Improvements

The new thermostatic radiator valves are equipped with a highly responsive, non-electric temperature sensor, capable of full modulation of the valve without an outside power source, which can be set to the desired room temperature. They will have an adjustable temperature setpoint range of 48°F to 84°F as well as a freeze protection setting of 42°F. The thermostatic controls will incorporate a feature to internally limit or lock the temperature setting, and will be capable of regulating temperature to within $\pm 1^\circ\text{F}$. An extension piece will be available to move the temperature sensor and control 6' away from the valve if needed.

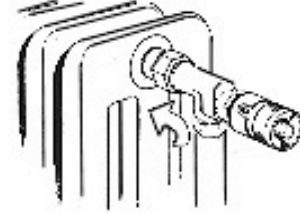
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Direct Sensing Straight Valve Body

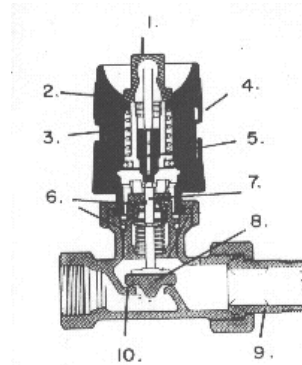


Direct Sensing Angle Valve Body



Direct Sensing Horizontal Angle Valve Body

The rugged and reliable construction provides years of service in steam heating systems. The temperature sensor expands or contracts based on room temperature changes. This movement adjusts the valve opening, which increases or decreases the flow through the radiator. Continual modulation of the valve reduces energy consumption, prevents costly over-heating and provides even temperature levels in each heating zone.



1. Room Temperature Sensor Element
2. Room Temperature Selector
3. Patented Special Balancing Spring
4. Locking/Limiting Stops
5. Insulated Push Rod
6. O Rings
7. Stainless Steel Valve Stem
8. EPDM Valve Disc Material
9. Union Connections (NPT or SWEAT)
10. Precision Machined Valve Seat

Scope of Work

NORESCO will install new thermostatic radiator valves in the selected steam heated buildings. Installation of a reliable thermostatic radiator valve will improve heating system control and reduce the need to open windows to mitigate overheating spaces. The scope of work for this measure includes the following:

- Identify selected radiator or convector valves
- Determine proper valve size and valve Cv to provide optimal control
- Determine proper valve type and sensor orientation for each valve
- Install new thermostatic radiator valve, including piping modifications where required

Building	Quantity of TRVs
Brown Middle School	79
Education Center	91
City Hall	158
TOTAL	328

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Interface with Existing Systems and Operations

Impact on Facility Operations and Performance

The facility will benefit from reduced energy consumption and improved occupant comfort.

Maintenance

NORESCO expects maintenance of the installed equipment to be comparable to current requirements.

Customer Training

NORESCO will provide O&M manuals for the installed equipment.

Equipment Information

Manufacturer and Type

NORESCO proposes to install thermostatic radiator valves as manufactured by Danfoss, or approved equal.

- **Danfoss Inc.** 3435 Box Hill Corporate Center Drive, Suite C Abingdon, MD 21009
(443) 512 – 0266

***Thermostatic Radiator Valves
I. Energy Savings Calculations***

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City of Newton **City Hall**
Thermostatic Radiator Valve Installations - NORESO Annual Energy Savings

I. Heating System Capacity Data And Operating Parameters

Existing Space Heating Systems - Estimated Design Capacity Data							Daily/Weekly Occupancy Schedule																
Building Heated Floor Area - Square Feet		81,000					Scheduling Control In Place (Y/N)		Y														
Estimated Peak Heating Load Factor - Btu/Hr/SF		26.0																					
Indoor Design Temperature		70 °F					Existing System Heating System "Occupied" Schedule		Percent Occupied Times By Daily Time Period														
Outdoor Design Temperature		7 °F																					
Estimated Building U*A Factor - Btu/Hour/Deg. F		33,429																					
Heating System Operating Setpoints - Existing And Proposed									Start		End												
				Existing		Proposed				Monday		7:30 AM		9:30 PM		6%		100%		69%			
										Tuesday		7:30 AM		9:30 PM		6%		100%		69%			
Space Heating Outside Air "Lockout" Temperature				55 °F		55 °F				Wednesday		8:00 AM		9:00 PM		0%		100%		63%			
Estimated Space Temperatures Maintained - Existing System										Thursday		6:00 AM		7:30 PM		25%		100%		44%			
Outside Air Temperature Range		Occupied Hours			Unocc. Hours				Friday		5:00 AM		11:59 PM		38%		100%		100%				
		12 AM To 8 AM		8 AM To 4 PM			4 PM To 12 AM				Saturday		12:00 AM		7:00 AM		88%		0%		0%		
											Sunday		5:00 AM		8:00 AM		38%		0%		0%		
								Annual Total						29%		71%		49%					
								Annual Occupied Hours Per Period						834		2,083		1,433					
0 °F To 30 °F		60 °F		72 °F		72 °F		60 °F		Total Annual Occupied Hours						4,350		50%					
30 °F To 40 °F		63 °F		73 °F		74 °F		60 °F															
40 °F To 70 °F		65 °F		74 °F		75 °F		60 °F															
									Proposed System Heating System "Occupied" Schedule					Percent Occupied Times By Daily Time Period									
				Occupied		Unocc.						12 AM To 8 AM		8 AM To 4 PM		4 PM To 12 AM							
Proposed Average Space Temperature With TRVs				70 °F		60 °F																	
Annual Months Of Heating System Operation									Monday		7:30 AM		9:30 PM		6%		100%		69%				
									Tuesday		7:30 AM		9:30 PM		6%		100%		69%				
									Wednesday		8:00 AM		9:00 PM		0%		100%		63%				
									Thursday		6:00 AM		7:30 PM		25%		100%		44%				
Month		Space Heating Enabled		Month		Space Heating Enabled				Friday		5:00 AM		11:59 PM		38%		100%		100%			
January		100%		July		0%				Saturday		12:00 AM		7:00 AM		88%		0%		0%			
February		100%		August		0%				Sunday		5:00 AM		8:00 AM		38%		0%		0%			
March		75%		September		0%				Annual Total						29%		71%		49%			
April		50%		October		25%				Annual Occupied Hours Per Period						834		2,083		1,433			
May		25%		November		75%				Total Annual Occupied Hours						4,350		50%					
June		0%		December		100%																	

City of Newton
City Hall
Thermostatic Radiator Valve Installations - NORESCO Annual Energy Savings

II. Existing Control System - Estimated Annual Heating Energy Usage - Occupied Hours

Building: City Hall
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	Heating Energy Usage 12 AM To 8 AM			Daily Time Period	Heating Energy Usage 8 AM To 4 PM			Daily Time Period	Heating Energy Usage 4 PM To 12 AM		
	12 AM To 8 AM	Existing Average Space Temp.	Existing Average MBH	Space Heating Annual MMBtu	8 AM To 4 PM	Existing Average Space Temp.	Existing Average MBH	Space Heating Annual MMBtu	4 PM To 12 AM	Existing Average Space Temp.	Existing Average MBH	Space Heating Annual MMBtu
	Heating Hours				Heating Hours				Heating Hours			
95 / 99	0	65 °F	0	0	0	74 °F	0	0	0	75 °F	0	0
90 / 94	0	65 °F	0	0	0	74 °F	0	0	0	75 °F	0	0
85 / 89	0	65 °F	0	0	1	74 °F	0	0	0	75 °F	0	0
80 / 84	0	65 °F	0	0	3	74 °F	0	0	0	75 °F	0	0
75 / 79	0	65 °F	0	0	8	74 °F	0	0	1	75 °F	0	0
70 / 74	0	65 °F	0	0	13	74 °F	0	0	3	75 °F	0	0
65 / 69	1	65 °F	0	0	23	74 °F	0	0	8	75 °F	0	0
60 / 64	4	65 °F	0	0	37	74 °F	0	0	14	75 °F	0	0
55 / 59	9	65 °F	0	0	52	74 °F	0	0	24	75 °F	0	0
50 / 54	15	65 °F	435	7	68	74 °F	735	50	35	75 °F	769	27
45 / 49	22	65 °F	602	13	83	74 °F	903	75	47	75 °F	936	44
40 / 44	32	65 °F	769	24	126	74 °F	1,070	135	70	75 °F	1,103	77
35 / 39	49	63 °F	869	42	143	73 °F	1,203	172	101	74 °F	1,237	125
30 / 34	67	63 °F	1,036	69	139	73 °F	1,371	191	115	74 °F	1,404	162
25 / 29	52	60 °F	1,103	57	102	72 °F	1,504	153	83	72 °F	1,504	125
20 / 24	42	60 °F	1,270	53	66	72 °F	1,671	110	61	72 °F	1,671	102
15 / 19	29	60 °F	1,437	42	44	72 °F	1,839	82	42	72 °F	1,839	76
10 / 14	23	60 °F	1,605	37	23	72 °F	2,006	45	26	72 °F	2,006	52
5 / 9	18	60 °F	1,772	32	11	72 °F	2,173	25	15	72 °F	2,173	33
0 / 4	10	60 °F	1,939	20	4	72 °F	2,340	10	4	72 °F	2,340	10
-5 / -1	4	60 °F	2,106	8	1	72 °F	2,507	4	2	72 °F	2,507	5
-10 / -6	2	60 °F	2,273	5	0	72 °F	2,674	0	0	72 °F	2,674	1
-15 / -11	1	60 °F	2,440	2	0	72 °F	2,841	0	0	72 °F	2,841	0
-20 / -16	0	60 °F	2,607	1	0	72 °F	3,009	0	0	72 °F	3,009	0
Totals	380			412	949			1,052	653			840

City of Newton
City Hall
Thermostatic Radiator Valve Installations - NORESCO Annual Energy Savings

III. Existing Control System - Estimated Annual Heating Energy Usage - Unoccupied Hours

Building: City Hall
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	Heating Energy Usage 12 AM To 8 AM			Daily Time Period	Heating Energy Usage 8 AM To 4 PM			Daily Time Period	Heating Energy Usage 4 PM To 12 AM		
	12 AM To 8 AM	Existing Average Space Temp.	Existing Average MBH	Space Heating Annual MMBtu	8 AM To 4 PM	Existing Average Space Temp.	Existing Average MBH	Space Heating Annual MMBtu	4 PM To 12 AM	Existing Average Space Temp.	Existing Average MBH	Space Heating Annual MMBtu
	Heating Hours				Heating Hours				Heating Hours			
95 / 99	0	65 °F	0	0	0	60 °F	0	0	0	60 °F	0	0
90 / 94	0	65 °F	0	0	0	60 °F	0	0	0	60 °F	0	0
85 / 89	0	65 °F	0	0	1	60 °F	0	0	0	60 °F	0	0
80 / 84	0	65 °F	0	0	1	60 °F	0	0	0	60 °F	0	0
75 / 79	0	65 °F	0	0	3	60 °F	0	0	1	60 °F	0	0
70 / 74	1	65 °F	0	0	5	60 °F	0	0	3	60 °F	0	0
65 / 69	3	65 °F	0	0	9	60 °F	0	0	8	60 °F	0	0
60 / 64	11	65 °F	0	0	15	60 °F	0	0	15	60 °F	0	0
55 / 59	22	65 °F	0	0	21	60 °F	0	0	25	60 °F	0	0
50 / 54	39	65 °F	435	17	27	60 °F	267	7	36	60 °F	267	10
45 / 49	55	65 °F	602	33	33	60 °F	435	14	49	60 °F	435	21
40 / 44	79	65 °F	769	61	51	60 °F	602	30	73	60 °F	602	44
35 / 39	121	63 °F	869	106	57	60 °F	769	44	105	60 °F	769	80
30 / 34	167	63 °F	1,036	173	56	60 °F	936	52	120	60 °F	936	112
25 / 29	130	60 °F	1,103	143	41	60 °F	1,103	45	86	60 °F	1,103	95
20 / 24	104	60 °F	1,270	132	26	60 °F	1,270	34	63	60 °F	1,270	80
15 / 19	73	60 °F	1,437	105	18	60 °F	1,437	26	43	60 °F	1,437	62
10 / 14	58	60 °F	1,605	93	9	60 °F	1,605	15	27	60 °F	1,605	44
5 / 9	45	60 °F	1,772	80	5	60 °F	1,772	8	16	60 °F	1,772	28
0 / 4	26	60 °F	1,939	50	2	60 °F	1,939	3	5	60 °F	1,939	9
-5 / -1	9	60 °F	2,106	20	1	60 °F	2,106	1	2	60 °F	2,106	4
-10 / -6	5	60 °F	2,273	11	0	60 °F	2,273	0	1	60 °F	2,273	1
-15 / -11	2	60 °F	2,440	5	0	60 °F	2,440	0	0	60 °F	2,440	0
-20 / -16	1	60 °F	2,607	2	0	60 °F	2,607	0	0	60 °F	2,607	0
Totals	949			1,029	379			279	677			590

City of Newton
City Hall
Thermostatic Radiator Valve Installations - NORESCO Annual Energy Savings

IV. Proposed Control System - Estimated Annual Heating Energy Usage - Occupied Hours

Building: City Hall
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	Heating Energy Usage 12 AM To 8 AM			Daily Time Period	Heating Energy Usage 8 AM To 4 PM			Daily Time Period	Heating Energy Usage 4 PM To 12 AM		
	12 AM To 8 AM	Proposed Average Space Temp.	Proposed Average MBH	Space Heating Annual MMBtu	8 AM To 4 PM	Proposed Average Space Temp.	Proposed Average MBH	Space Heating Annual MMBtu	4 PM To 12 AM	Proposed Average Space Temp.	Proposed Average MBH	Space Heating Annual MMBtu
	Heating Hours				Heating Hours				Heating Hours			
95 / 99	0	65 °F	0	0	0	70 °F	0	0	0	70 °F	0	0
90 / 94	0	65 °F	0	0	0	70 °F	0	0	0	70 °F	0	0
85 / 89	0	65 °F	0	0	1	70 °F	0	0	0	70 °F	0	0
80 / 84	0	65 °F	0	0	3	70 °F	0	0	0	70 °F	0	0
75 / 79	0	65 °F	0	0	8	70 °F	0	0	1	70 °F	0	0
70 / 74	0	65 °F	0	0	13	70 °F	0	0	3	70 °F	0	0
65 / 69	1	65 °F	0	0	23	70 °F	0	0	8	70 °F	0	0
60 / 64	4	65 °F	0	0	37	70 °F	0	0	14	70 °F	0	0
55 / 59	9	65 °F	0	0	52	70 °F	0	0	24	70 °F	0	0
50 / 54	15	65 °F	435	7	68	70 °F	602	41	35	70 °F	602	21
45 / 49	22	65 °F	602	13	83	70 °F	769	64	47	70 °F	769	36
40 / 44	32	65 °F	769	24	126	70 °F	936	118	70	70 °F	936	66
35 / 39	49	63 °F	869	42	143	70 °F	1,103	158	101	70 °F	1,103	111
30 / 34	67	63 °F	1,036	69	139	70 °F	1,270	177	115	70 °F	1,270	147
25 / 29	52	60 °F	1,103	57	102	70 °F	1,437	146	83	70 °F	1,437	120
20 / 24	42	60 °F	1,270	53	66	70 °F	1,605	106	61	70 °F	1,605	98
15 / 19	29	60 °F	1,437	42	44	70 °F	1,772	79	42	70 °F	1,772	74
10 / 14	23	60 °F	1,605	37	23	70 °F	1,939	44	26	70 °F	1,939	51
5 / 9	18	60 °F	1,772	32	11	70 °F	2,106	24	15	70 °F	2,106	32
0 / 4	10	60 °F	1,939	20	4	70 °F	2,273	10	4	70 °F	2,273	10
-5 / -1	4	60 °F	2,106	8	1	70 °F	2,440	3	2	70 °F	2,440	5
-10 / -6	2	60 °F	2,273	5	0	70 °F	2,607	0	0	70 °F	2,607	1
-15 / -11	1	60 °F	2,440	2	0	70 °F	2,775	0	0	70 °F	2,775	0
-20 / -16	0	60 °F	2,607	1	0	70 °F	2,942	0	0	70 °F	2,942	0
Totals	380			412	949			970	653			770

City of Newton
City Hall
Thermostatic Radiator Valve Installations - NORESCO Annual Energy Savings

V. Proposed Control System - Estimated Annual Heating Energy Usage - Unoccupied Hours

Building: City Hall
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	Heating Energy Usage 12 AM To 8 AM			Daily Time Period	Heating Energy Usage 8 AM To 4 PM			Daily Time Period	Heating Energy Usage 4 PM To 12 AM		
	12 AM To 8 AM	Proposed Average Space Temp.	Proposed Average MBH	Space Heating Annual MMBtu	8 AM To 4 PM	Proposed Average Space Temp.	Proposed Average MBH	Space Heating Annual MMBtu	4 PM To 12 AM	Proposed Average Space Temp.	Proposed Average MBH	Space Heating Annual MMBtu
	Heating Hours				Heating Hours				Heating Hours			
95 / 99	0	60 °F	0	0	0	60 °F	0	0	0	60 °F	0	0
90 / 94	0	60 °F	0	0	0	60 °F	0	0	0	60 °F	0	0
85 / 89	0	60 °F	0	0	1	60 °F	0	0	0	60 °F	0	0
80 / 84	0	60 °F	0	0	1	60 °F	0	0	0	60 °F	0	0
75 / 79	0	60 °F	0	0	3	60 °F	0	0	1	60 °F	0	0
70 / 74	1	60 °F	0	0	5	60 °F	0	0	3	60 °F	0	0
65 / 69	3	60 °F	0	0	9	60 °F	0	0	8	60 °F	0	0
60 / 64	11	60 °F	0	0	15	60 °F	0	0	15	60 °F	0	0
55 / 59	22	60 °F	0	0	21	60 °F	0	0	25	60 °F	0	0
50 / 54	39	60 °F	267	10	27	60 °F	267	7	36	60 °F	267	10
45 / 49	55	60 °F	435	24	33	60 °F	435	14	49	60 °F	435	21
40 / 44	79	60 °F	602	47	51	60 °F	602	30	73	60 °F	602	44
35 / 39	121	60 °F	769	93	57	60 °F	769	44	105	60 °F	769	80
30 / 34	167	60 °F	936	156	56	60 °F	936	52	120	60 °F	936	112
25 / 29	130	60 °F	1,103	143	41	60 °F	1,103	45	86	60 °F	1,103	95
20 / 24	104	60 °F	1,270	132	26	60 °F	1,270	34	63	60 °F	1,270	80
15 / 19	73	60 °F	1,437	105	18	60 °F	1,437	26	43	60 °F	1,437	62
10 / 14	58	60 °F	1,605	93	9	60 °F	1,605	15	27	60 °F	1,605	44
5 / 9	45	60 °F	1,772	80	5	60 °F	1,772	8	16	60 °F	1,772	28
0 / 4	26	60 °F	1,939	50	2	60 °F	1,939	3	5	60 °F	1,939	9
-5 / -1	9	60 °F	2,106	20	1	60 °F	2,106	1	2	60 °F	2,106	4
-10 / -6	5	60 °F	2,273	11	0	60 °F	2,273	0	1	60 °F	2,273	1
-15 / -11	2	60 °F	2,440	5	0	60 °F	2,440	0	0	60 °F	2,440	0
-20 / -16	1	60 °F	2,607	2	0	60 °F	2,607	0	0	60 °F	2,607	0
Totals	949			972	379			279	677			590

City of Newton City Hall Thermostatic Radiator Valve Installations - NORESCO Annual Energy Savings

VI. Proposed Control System - Estimated Annual Heating Energy Savings

Annual Heating Energy Savings Summary					
		Annual Space Heating Energy Use			
		Existing	Proposed	Saved	
	Total Space Heating End-Use MMBtu	4,203	3,993	210	
	Estimated Average Boiler/Distribution Efficiency	80%	80%		
	Calculated Annual Space Heating Therms	52,532	49,909	2,623	
	Space Heating Input Btu/SF/Year	64,855	61,616	3,238	

City of Newton **Education Center**
Thermostatic Radiator Valve Installations - NORESO Annual Energy Savings

I. Heating System Capacity Data And Operating Parameters

Existing Space Heating Systems - Estimated Design Capacity Data						Daily/Weekly Occupancy Schedule								
Building Heated Floor Area - Square Feet		70,000				Scheduling Control In Place (Y/N)		Y						
Estimated Peak Heating Load Factor - Btu/Hr/SF		32.0				Existing System Heating System "Occupied" Schedule		Percent Occupied Times By Daily Time Period						
Indoor Design Temperature		70 °F						12 AM To 8 AM	8 AM To 4 PM	4 PM To 12 AM				
Outdoor Design Temperature		7 °F												
Estimated Building U*A Factor - Btu/Hour/Deg. F		35,556												
Heating System Operating Setpoints - Existing And Proposed						Start		End						
				Existing	Proposed		Monday	12:00 AM	6:00 PM	100%	100%	25%		
							Tuesday	4:00 AM	6:30 PM	50%	100%	31%		
Space Heating Outside Air "Lockout" Temperature				55 °F	55 °F		Wednesday	6:00 AM	6:00 PM	25%	100%	25%		
							Thursday	5:00 AM	5:30 PM	38%	100%	19%		
Estimated Space Temperatures Maintained - Existing System							Friday	5:00 AM	6:00 PM	38%	100%	25%		
Outside Air Temperature Range		Occupied Hours			Unocc. Hours		Saturday	12:00 AM	12:00 AM	0%	0%	0%		
		12 AM To 8 AM					Sunday	10:00 PM	11:59 PM	0%	0%	25%		
		8 AM To 4 PM				Annual Total			36%	71%	21%			
		4 PM To 12 AM				Annual Occupied Hours Per Period			1,042	2,083	626			
		0 °F To 30 °F				Total Annual Occupied Hours			3,751	43%				
		30 °F To 40 °F												
40 °F To 70 °F						65 °F		74 °F		75 °F		60 °F		
						Proposed System Heating System "Occupied" Schedule		Percent Occupied Times By Daily Time Period						
				Occupied	Unocc.		12 AM To 8 AM		8 AM To 4 PM	4 PM To 12 AM				
Proposed Average Space Temperature With TRVs				70 °F	60 °F									
						Start		End						
Annual Months Of Heating System Operation						Monday		12:00 AM		6:00 PM		100%	100%	25%
						Tuesday		4:00 AM		6:30 PM		50%	100%	31%
						Wednesday		6:00 AM		6:00 PM		25%	100%	25%
						Thursday		5:00 AM		5:30 PM		38%	100%	19%
						Friday		5:00 AM		6:00 PM		38%	100%	25%
						Saturday		12:00 AM		12:00 AM		0%	0%	0%
						Sunday		10:00 PM		11:59 PM		0%	0%	25%
						Annual Total						36%	71%	21%
						Annual Occupied Hours Per Period						1,042	2,083	626
						Total Annual Occupied Hours						3,751	43%	
Month		Space Heating Enabled	Month		Space Heating Enabled									
January		100%	July		0%									
February		100%	August		0%									
March		75%	September		0%									
April		50%	October		25%									
May		25%	November		75%									
June		0%	December		100%									

City of Newton Education Center Thermostatic Radiator Valve Installations - NORESCO Annual Energy Savings

II. Existing Control System - Estimated Annual Heating Energy Usage - Occupied Hours

Building:	Education Center
Weather Data Location:	Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	Heating Energy Usage 12 AM To 8 AM			Daily Time Period	Heating Energy Usage 8 AM To 4 PM			Daily Time Period	Heating Energy Usage 4 PM To 12 AM		
	12 AM To 8 AM	Existing Average Space Temp.	Existing Average MBH	Space Heating Annual MMBtu	8 AM To 4 PM	Existing Average Space Temp.	Existing Average MBH	Space Heating Annual MMBtu	4 PM To 12 AM	Existing Average Space Temp.	Existing Average MBH	Space Heating Annual MMBtu
	Heating Hours				Heating Hours				Heating Hours			
95 / 99	0	65 °F	0	0	0	74 °F	0	0	0	75 °F	0	0
90 / 94	0	65 °F	0	0	0	74 °F	0	0	0	75 °F	0	0
85 / 89	0	65 °F	0	0	1	74 °F	0	0	0	75 °F	0	0
80 / 84	0	65 °F	0	0	3	74 °F	0	0	0	75 °F	0	0
75 / 79	0	65 °F	0	0	8	74 °F	0	0	1	75 °F	0	0
70 / 74	0	65 °F	0	0	13	74 °F	0	0	1	75 °F	0	0
65 / 69	2	65 °F	0	0	23	74 °F	0	0	3	75 °F	0	0
60 / 64	5	65 °F	0	0	37	74 °F	0	0	6	75 °F	0	0
55 / 59	11	65 °F	0	0	52	74 °F	0	0	10	75 °F	0	0
50 / 54	19	65 °F	462	9	68	74 °F	782	53	15	75 °F	818	12
45 / 49	27	65 °F	640	18	83	74 °F	960	80	21	75 °F	996	20
40 / 44	39	65 °F	818	32	126	74 °F	1,138	144	31	75 °F	1,173	36
35 / 39	61	64 °F	960	58	143	73 °F	1,280	183	44	74 °F	1,316	58
30 / 34	83	64 °F	1,138	95	139	73 °F	1,458	203	50	74 °F	1,493	75
25 / 29	65	60 °F	1,173	76	102	72 °F	1,600	163	36	72 °F	1,600	58
20 / 24	52	60 °F	1,351	70	66	72 °F	1,778	117	27	72 °F	1,778	47
15 / 19	37	60 °F	1,529	56	44	72 °F	1,956	87	18	72 °F	1,956	36
10 / 14	29	60 °F	1,707	49	23	72 °F	2,133	48	11	72 °F	2,133	24
5 / 9	23	60 °F	1,884	43	11	72 °F	2,311	26	7	72 °F	2,311	15
0 / 4	13	60 °F	2,062	26	4	72 °F	2,489	11	2	72 °F	2,489	5
-5 / -1	5	60 °F	2,240	10	1	72 °F	2,667	4	1	72 °F	2,667	2
-10 / -6	3	60 °F	2,418	6	0	72 °F	2,844	0	0	72 °F	2,844	1
-15 / -11	1	60 °F	2,596	3	0	72 °F	3,022	0	0	72 °F	3,022	0
-20 / -16	0	60 °F	2,773	1	0	72 °F	3,200	0	0	72 °F	3,200	0
Totals	474			553	949			1,119	285			390

City of Newton
Thermostatic Radiator Valve Installations - NORESCO Annual Energy Savings

III. Existing Control System - Estimated Annual Heating Energy Usage - Unoccupied Hours

Building: Education Center
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	Heating Energy Usage 12 AM To 8 AM			Daily Time Period	Heating Energy Usage 8 AM To 4 PM			Daily Time Period	Heating Energy Usage 4 PM To 12 AM		
	12 AM To 8 AM	Existing Average Space Temp.	Existing Average MBH	Space Heating Annual MMBtu	8 AM To 4 PM	Existing Average Space Temp.	Existing Average MBH	Space Heating Annual MMBtu	4 PM To 12 AM	Existing Average Space Temp.	Existing Average MBH	Space Heating Annual MMBtu
	Heating Hours				Heating Hours				Heating Hours			
95 / 99	0	65 °F	0	0	0	60 °F	0	0	0	60 °F	0	0
90 / 94	0	65 °F	0	0	0	60 °F	0	0	0	60 °F	0	0
85 / 89	0	65 °F	0	0	1	60 °F	0	0	0	60 °F	0	0
80 / 84	0	65 °F	0	0	1	60 °F	0	0	1	60 °F	0	0
75 / 79	0	65 °F	0	0	3	60 °F	0	0	2	60 °F	0	0
70 / 74	0	65 °F	0	0	5	60 °F	0	0	5	60 °F	0	0
65 / 69	3	65 °F	0	0	9	60 °F	0	0	13	60 °F	0	0
60 / 64	10	65 °F	0	0	15	60 °F	0	0	23	60 °F	0	0
55 / 59	19	65 °F	0	0	21	60 °F	0	0	39	60 °F	0	0
50 / 54	35	65 °F	462	16	27	60 °F	284	8	55	60 °F	284	16
45 / 49	49	65 °F	640	32	33	60 °F	462	15	75	60 °F	462	35
40 / 44	71	65 °F	818	58	51	60 °F	640	32	112	60 °F	640	72
35 / 39	109	64 °F	960	105	57	60 °F	818	47	161	60 °F	818	132
30 / 34	150	64 °F	1,138	171	56	60 °F	996	55	185	60 °F	996	184
25 / 29	117	60 °F	1,173	137	41	60 °F	1,173	48	133	60 °F	1,173	156
20 / 24	93	60 °F	1,351	126	26	60 °F	1,351	36	98	60 °F	1,351	132
15 / 19	66	60 °F	1,529	101	18	60 °F	1,529	27	67	60 °F	1,529	102
10 / 14	52	60 °F	1,707	89	9	60 °F	1,707	15	42	60 °F	1,707	71
5 / 9	41	60 °F	1,884	77	5	60 °F	1,884	9	24	60 °F	1,884	46
0 / 4	23	60 °F	2,062	47	2	60 °F	2,062	4	7	60 °F	2,062	15
-5 / -1	8	60 °F	2,240	19	1	60 °F	2,240	1	3	60 °F	2,240	7
-10 / -6	4	60 °F	2,418	11	0	60 °F	2,418	0	1	60 °F	2,418	2
-15 / -11	2	60 °F	2,596	5	0	60 °F	2,596	0	0	60 °F	2,596	0
-20 / -16	1	60 °F	2,773	2	0	60 °F	2,773	0	0	60 °F	2,773	0
Totals	854			995	379			297	1,045			969

City of Newton Education Center Thermostatic Radiator Valve Installations - NORESCO Annual Energy Savings

IV. Proposed Control System - Estimated Annual Heating Energy Usage - Occupied Hours

Building:	Education Center
Weather Data Location:	Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	Heating Energy Usage 12 AM To 8 AM			Daily Time Period	Heating Energy Usage 8 AM To 4 PM			Daily Time Period	Heating Energy Usage 4 PM To 12 AM		
	12 AM To 8 AM	Proposed Average Space Temp.	Proposed Average MBH	Space Heating Annual MMBtu	8 AM To 4 PM	Proposed Average Space Temp.	Proposed Average MBH	Space Heating Annual MMBtu	4 PM To 12 AM	Proposed Average Space Temp.	Proposed Average MBH	Space Heating Annual MMBtu
	Heating Hours				Heating Hours				Heating Hours			
95 / 99	0	65 °F	0	0	0	70 °F	0	0	0	70 °F	0	0
90 / 94	0	65 °F	0	0	0	70 °F	0	0	0	70 °F	0	0
85 / 89	0	65 °F	0	0	1	70 °F	0	0	0	70 °F	0	0
80 / 84	0	65 °F	0	0	3	70 °F	0	0	0	70 °F	0	0
75 / 79	0	65 °F	0	0	8	70 °F	0	0	1	70 °F	0	0
70 / 74	0	65 °F	0	0	13	70 °F	0	0	1	70 °F	0	0
65 / 69	2	65 °F	0	0	23	70 °F	0	0	3	70 °F	0	0
60 / 64	5	65 °F	0	0	37	70 °F	0	0	6	70 °F	0	0
55 / 59	11	65 °F	0	0	52	70 °F	0	0	10	70 °F	0	0
50 / 54	19	65 °F	462	9	68	70 °F	640	44	15	70 °F	640	10
45 / 49	27	65 °F	640	18	83	70 °F	818	68	21	70 °F	818	17
40 / 44	39	65 °F	818	32	126	70 °F	996	126	31	70 °F	996	31
35 / 39	61	64 °F	960	58	143	70 °F	1,173	168	44	70 °F	1,173	52
30 / 34	83	64 °F	1,138	95	139	70 °F	1,351	188	50	70 °F	1,351	68
25 / 29	65	60 °F	1,173	76	102	70 °F	1,529	155	36	70 °F	1,529	56
20 / 24	52	60 °F	1,351	70	66	70 °F	1,707	113	27	70 °F	1,707	45
15 / 19	37	60 °F	1,529	56	44	70 °F	1,884	84	18	70 °F	1,884	34
10 / 14	29	60 °F	1,707	49	23	70 °F	2,062	47	11	70 °F	2,062	24
5 / 9	23	60 °F	1,884	43	11	70 °F	2,240	26	7	70 °F	2,240	15
0 / 4	13	60 °F	2,062	26	4	70 °F	2,418	10	2	70 °F	2,418	5
-5 / -1	5	60 °F	2,240	10	1	70 °F	2,596	4	1	70 °F	2,596	2
-10 / -6	3	60 °F	2,418	6	0	70 °F	2,773	0	0	70 °F	2,773	1
-15 / -11	1	60 °F	2,596	3	0	70 °F	2,951	0	0	70 °F	2,951	0
-20 / -16	0	60 °F	2,773	1	0	70 °F	3,129	0	0	70 °F	3,129	0
Totals	474			553	949			1,031	285			358

City of Newton
Thermostatic Radiator Valve Installations - NORESCO Annual Energy Savings

V. Proposed Control System - Estimated Annual Heating Energy Usage - Unoccupied Hours

Building: Education Center
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	Heating Energy Usage 12 AM To 8 AM			Daily Time Period	Heating Energy Usage 8 AM To 4 PM			Daily Time Period	Heating Energy Usage 4 PM To 12 AM		
	12 AM To 8 AM	Proposed Average Space Temp.	Proposed Average MBH	Space Heating Annual MMBtu	8 AM To 4 PM	Proposed Average Space Temp.	Proposed Average MBH	Space Heating Annual MMBtu	4 PM To 12 AM	Proposed Average Space Temp.	Proposed Average MBH	Space Heating Annual MMBtu
	Heating Hours				Heating Hours				Heating Hours			
95 / 99	0	60 °F	0	0	0	60 °F	0	0	0	60 °F	0	0
90 / 94	0	60 °F	0	0	0	60 °F	0	0	0	60 °F	0	0
85 / 89	0	60 °F	0	0	1	60 °F	0	0	0	60 °F	0	0
80 / 84	0	60 °F	0	0	1	60 °F	0	0	1	60 °F	0	0
75 / 79	0	60 °F	0	0	3	60 °F	0	0	2	60 °F	0	0
70 / 74	0	60 °F	0	0	5	60 °F	0	0	5	60 °F	0	0
65 / 69	3	60 °F	0	0	9	60 °F	0	0	13	60 °F	0	0
60 / 64	10	60 °F	0	0	15	60 °F	0	0	23	60 °F	0	0
55 / 59	19	60 °F	0	0	21	60 °F	0	0	39	60 °F	0	0
50 / 54	35	60 °F	284	10	27	60 °F	284	8	55	60 °F	284	16
45 / 49	49	60 °F	462	23	33	60 °F	462	15	75	60 °F	462	35
40 / 44	71	60 °F	640	45	51	60 °F	640	32	112	60 °F	640	72
35 / 39	109	60 °F	818	89	57	60 °F	818	47	161	60 °F	818	132
30 / 34	150	60 °F	996	149	56	60 °F	996	55	185	60 °F	996	184
25 / 29	117	60 °F	1,173	137	41	60 °F	1,173	48	133	60 °F	1,173	156
20 / 24	93	60 °F	1,351	126	26	60 °F	1,351	36	98	60 °F	1,351	132
15 / 19	66	60 °F	1,529	101	18	60 °F	1,529	27	67	60 °F	1,529	102
10 / 14	52	60 °F	1,707	89	9	60 °F	1,707	15	42	60 °F	1,707	71
5 / 9	41	60 °F	1,884	77	5	60 °F	1,884	9	24	60 °F	1,884	46
0 / 4	23	60 °F	2,062	47	2	60 °F	2,062	4	7	60 °F	2,062	15
-5 / -1	8	60 °F	2,240	19	1	60 °F	2,240	1	3	60 °F	2,240	7
-10 / -6	4	60 °F	2,418	11	0	60 °F	2,418	0	1	60 °F	2,418	2
-15 / -11	2	60 °F	2,596	5	0	60 °F	2,596	0	0	60 °F	2,596	0
-20 / -16	1	60 °F	2,773	2	0	60 °F	2,773	0	0	60 °F	2,773	0
Totals	854			930	379			297	1,045			969

City of Newton
Education Center
Thermostatic Radiator Valve Installations - NORESKO Annual Energy Savings

VI. Proposed Control System - Estimated Annual Heating Energy Savings

Annual Heating Energy Savings Summary				
		Annual Space Heating Energy Use		
		Existing	Proposed	Saved
	Total Space Heating End-Use MMBtu	4,322	4,137	184
	Estimated Average Boiler/Distribution Efficiency	80%	80%	
	Calculated Annual Space Heating Therms	54,023	51,719	2,305
	Space Heating Input Btu/SF/Year	77,176	73,884	3,293

City of Newton
Brown Middle School
Thermostatic Radiator Valve Installations - NORESO Annual Energy Savings

I. Heating System Capacity Data And Operating Parameters

Existing Space Heating Systems - Estimated Design Capacity Data						Daily/Weekly Occupancy Schedule						
Building Heated Floor Area - Square Feet		146,000				Scheduling Control In Place (Y/N)		Y				
Estimated Peak Heating Load Factor - Btu/Hr/SF		42.0				Existing System Heating System "Occupied" Schedule		Percent Occupied Times By Daily Time Period				
Indoor Design Temperature		70 °F						12 AM To 8 AM	8 AM To 4 PM	4 PM To 12 AM		
Outdoor Design Temperature		7 °F										
Estimated Building U*A Factor - Btu/Hour/Deg. F		97,333										
Heating System Operating Setpoints - Existing And Proposed						Start		End				
				Existing	Proposed		Monday	6:00 AM	6:00 PM	25%	100%	25%
							Tuesday	6:00 AM	6:00 PM	25%	100%	25%
Space Heating Outside Air "Lockout" Temperature				55 °F	55 °F		Wednesday	6:00 AM	6:00 PM	25%	100%	25%
							Thursday	6:00 AM	6:00 PM	25%	100%	25%
Estimated Space Temperatures Maintained - Existing System							Friday	6:00 AM	6:00 PM	25%	100%	25%
Outside Air Temperature Range		Occupied Hours			Unocc. Hours		Saturday	9:00 AM	6:00 PM	0%	88%	25%
		12 AM To 8 AM	8 AM To 4 PM	4 PM To 12 AM			Sunday	9:00 AM	6:00 PM	0%	88%	25%
						Annual Total			18%	96%	25%	
						Annual Occupied Hours Per Period			521	2,812	730	
						Total Annual Occupied Hours			4,063	46%		
0 °F To 30 °F		60 °F	72 °F	72 °F	60 °F							
30 °F To 40 °F		64 °F	73 °F	74 °F	60 °F							
40 °F To 70 °F		65 °F	74 °F	75 °F	60 °F							
						Proposed System Heating System "Occupied" Schedule		Percent Occupied Times By Daily Time Period				
				Occupied	Unocc.		12 AM To 8 AM		8 AM To 4 PM	4 PM To 12 AM		
Proposed Average Space Temperature With TRVs				70 °F	60 °F							
						Start		End				
Annual Months Of Heating System Operation						Monday		6:00 AM	6:00 PM	25%	100%	25%
						Tuesday		6:00 AM	6:00 PM	25%	100%	25%
						Wednesday		6:00 AM	6:00 PM	25%	100%	25%
						Thursday		6:00 AM	6:00 PM	25%	100%	25%
						Friday		6:00 AM	6:00 PM	25%	100%	25%
						Saturday		9:00 AM	6:00 PM	0%	88%	25%
						Sunday		9:00 AM	6:00 PM	0%	88%	25%
						Annual Total				18%	96%	25%
						Annual Occupied Hours Per Period				521	2,812	730
						Total Annual Occupied Hours				4,063	46%	
	Month	Space Heating Enabled	Month	Space Heating Enabled								
	January	100%	July	0%								
	February	100%	August	0%								
	March	75%	September	0%								
	April	50%	October	25%								
	May	25%	November	75%								
	June	0%	December	100%								

City of Newton
Brown Middle School
Thermostatic Radiator Valve Installations - NORESO Annual Energy Savings

II. Existing Control System - Estimated Annual Heating Energy Usage - Occupied Hours

Building: Brown Middle School
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	Heating Energy Usage 12 AM To 8 AM			Daily Time Period	Heating Energy Usage 8 AM To 4 PM			Daily Time Period	Heating Energy Usage 4 PM To 12 AM		
	12 AM To 8 AM	Existing Average Space Temp.	Existing Average MBH	Space Heating Annual MMBtu	8 AM To 4 PM	Existing Average Space Temp.	Existing Average MBH	Space Heating Annual MMBtu	4 PM To 12 AM	Existing Average Space Temp.	Existing Average MBH	Space Heating Annual MMBtu
	Heating Hours				Heating Hours				Heating Hours			
95 / 99	0	65 °F	0	0	0	74 °F	0	0	0	75 °F	0	0
90 / 94	0	65 °F	0	0	0	74 °F	0	0	0	75 °F	0	0
85 / 89	0	65 °F	0	0	2	74 °F	0	0	0	75 °F	0	0
80 / 84	0	65 °F	0	0	4	74 °F	0	0	0	75 °F	0	0
75 / 79	0	65 °F	0	0	10	74 °F	0	0	1	75 °F	0	0
70 / 74	0	65 °F	0	0	18	74 °F	0	0	2	75 °F	0	0
65 / 69	1	65 °F	0	0	31	74 °F	0	0	4	75 °F	0	0
60 / 64	3	65 °F	0	0	50	74 °F	0	0	7	75 °F	0	0
55 / 59	5	65 °F	0	0	70	74 °F	0	0	12	75 °F	0	0
50 / 54	10	65 °F	1,265	12	92	74 °F	2,141	197	18	75 °F	2,239	39
45 / 49	14	65 °F	1,752	24	112	74 °F	2,628	295	24	75 °F	2,725	65
40 / 44	20	65 °F	2,239	44	171	74 °F	3,115	532	36	75 °F	3,212	115
35 / 39	30	64 °F	2,628	80	193	73 °F	3,504	676	51	74 °F	3,601	185
30 / 34	42	64 °F	3,115	130	188	73 °F	3,991	749	59	74 °F	4,088	240
25 / 29	32	60 °F	3,212	104	137	72 °F	4,380	601	42	72 °F	4,380	186
20 / 24	26	60 °F	3,699	96	89	72 °F	4,867	434	31	72 °F	4,867	151
15 / 19	18	60 °F	4,185	77	60	72 °F	5,353	321	21	72 °F	5,353	113
10 / 14	14	60 °F	4,672	68	31	72 °F	5,840	179	13	72 °F	5,840	78
5 / 9	11	60 °F	5,159	58	15	72 °F	6,327	98	8	72 °F	6,327	49
0 / 4	6	60 °F	5,645	36	6	72 °F	6,813	39	2	72 °F	6,813	15
-5 / -1	2	60 °F	6,132	14	2	72 °F	7,300	14	1	72 °F	7,300	7
-10 / -6	1	60 °F	6,619	8	0	72 °F	7,787	0	0	72 °F	7,787	2
-15 / -11	1	60 °F	7,105	4	0	72 °F	8,273	0	0	72 °F	8,273	0
-20 / -16	0	60 °F	7,592	1	0	72 °F	8,760	0	0	72 °F	8,760	0
Totals	237			756	1,281			4,135	333			1,246

City of Newton Brown Middle School
Thermostatic Radiator Valve Installations - NORESCO Annual Energy Savings

III. Existing Control System - Estimated Annual Heating Energy Usage - Unoccupied Hours

Building: Brown Middle School
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	Heating Energy Usage 12 AM To 8 AM			Daily Time Period	Heating Energy Usage 8 AM To 4 PM			Daily Time Period	Heating Energy Usage 4 PM To 12 AM		
	12 AM To 8 AM	Existing Average Space Temp.	Existing Average MBH	Space Heating Annual MMBtu	8 AM To 4 PM	Existing Average Space Temp.	Existing Average MBH	Space Heating Annual MMBtu	4 PM To 12 AM	Existing Average Space Temp.	Existing Average MBH	Space Heating Annual MMBtu
	Heating Hours				Heating Hours				Heating Hours			
95 / 99	0	65 °F	0	0	0	60 °F	0	0	0	60 °F	0	0
90 / 94	0	65 °F	0	0	0	60 °F	0	0	0	60 °F	0	0
85 / 89	0	65 °F	0	0	0	60 °F	0	0	0	60 °F	0	0
80 / 84	0	65 °F	0	0	0	60 °F	0	0	1	60 °F	0	0
75 / 79	0	65 °F	0	0	0	60 °F	0	0	2	60 °F	0	0
70 / 74	1	65 °F	0	0	1	60 °F	0	0	5	60 °F	0	0
65 / 69	3	65 °F	0	0	1	60 °F	0	0	12	60 °F	0	0
60 / 64	12	65 °F	0	0	2	60 °F	0	0	22	60 °F	0	0
55 / 59	25	65 °F	0	0	3	60 °F	0	0	37	60 °F	0	0
50 / 54	44	65 °F	1,265	56	3	60 °F	779	3	53	60 °F	779	41
45 / 49	63	65 °F	1,752	110	4	60 °F	1,265	5	72	60 °F	1,265	91
40 / 44	91	65 °F	2,239	203	6	60 °F	1,752	11	107	60 °F	1,752	188
35 / 39	140	64 °F	2,628	367	7	60 °F	2,239	16	154	60 °F	2,239	345
30 / 34	192	64 °F	3,115	597	7	60 °F	2,725	19	176	60 °F	2,725	480
25 / 29	149	60 °F	3,212	480	5	60 °F	3,212	16	127	60 °F	3,212	408
20 / 24	119	60 °F	3,699	441	3	60 °F	3,699	12	93	60 °F	3,699	345
15 / 19	84	60 °F	4,185	352	2	60 °F	4,185	9	64	60 °F	4,185	266
10 / 14	67	60 °F	4,672	311	1	60 °F	4,672	5	40	60 °F	4,672	187
5 / 9	52	60 °F	5,159	268	1	60 °F	5,159	3	23	60 °F	5,159	119
0 / 4	29	60 °F	5,645	166	0	60 °F	5,645	1	7	60 °F	5,645	38
-5 / -1	11	60 °F	6,132	65	0	60 °F	6,132	0	3	60 °F	6,132	18
-10 / -6	6	60 °F	6,619	38	0	60 °F	6,619	0	1	60 °F	6,619	5
-15 / -11	2	60 °F	7,105	18	0	60 °F	7,105	0	0	60 °F	7,105	0
-20 / -16	1	60 °F	7,592	6	0	60 °F	7,592	0	0	60 °F	7,592	0
Totals	1,091			3,479	47			102	998			2,531

City of Newton Brown Middle School
Thermostatic Radiator Valve Installations - NORESCO Annual Energy Savings

IV. Proposed Control System - Estimated Annual Heating Energy Usage - Occupied Hours

Building: Brown Middle School
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	Heating Energy Usage 12 AM To 8 AM			Daily Time Period	Heating Energy Usage 8 AM To 4 PM			Daily Time Period	Heating Energy Usage 4 PM To 12 AM		
	12 AM To 8 AM	Proposed Average Space Temp.	Proposed Average MBH	Space Heating Annual MMBtu	8 AM To 4 PM	Proposed Average Space Temp.	Proposed Average MBH	Space Heating Annual MMBtu	4 PM To 12 AM	Proposed Average Space Temp.	Proposed Average MBH	Space Heating Annual MMBtu
	Heating Hours				Heating Hours				Heating Hours			
95 / 99	0	65 °F	0	0	0	70 °F	0	0	0	70 °F	0	0
90 / 94	0	65 °F	0	0	0	70 °F	0	0	0	70 °F	0	0
85 / 89	0	65 °F	0	0	2	70 °F	0	0	0	70 °F	0	0
80 / 84	0	65 °F	0	0	4	70 °F	0	0	0	70 °F	0	0
75 / 79	0	65 °F	0	0	10	70 °F	0	0	1	70 °F	0	0
70 / 74	0	65 °F	0	0	18	70 °F	0	0	2	70 °F	0	0
65 / 69	1	65 °F	0	0	31	70 °F	0	0	4	70 °F	0	0
60 / 64	3	65 °F	0	0	50	70 °F	0	0	7	70 °F	0	0
55 / 59	5	65 °F	0	0	70	70 °F	0	0	12	70 °F	0	0
50 / 54	10	65 °F	1,265	12	92	70 °F	1,752	161	18	70 °F	1,752	31
45 / 49	14	65 °F	1,752	24	112	70 °F	2,239	251	24	70 °F	2,239	54
40 / 44	20	65 °F	2,239	44	171	70 °F	2,725	465	36	70 °F	2,725	97
35 / 39	30	64 °F	2,628	80	193	70 °F	3,212	619	51	70 °F	3,212	165
30 / 34	42	64 °F	3,115	130	188	70 °F	3,699	695	59	70 °F	3,699	217
25 / 29	32	60 °F	3,212	104	137	70 °F	4,185	574	42	70 °F	4,185	177
20 / 24	26	60 °F	3,699	96	89	70 °F	4,672	417	31	70 °F	4,672	145
15 / 19	18	60 °F	4,185	77	60	70 °F	5,159	310	21	70 °F	5,159	109
10 / 14	14	60 °F	4,672	68	31	70 °F	5,645	173	13	70 °F	5,645	75
5 / 9	11	60 °F	5,159	58	15	70 °F	6,132	95	8	70 °F	6,132	47
0 / 4	6	60 °F	5,645	36	6	70 °F	6,619	38	2	70 °F	6,619	15
-5 / -1	2	60 °F	6,132	14	2	70 °F	7,105	14	1	70 °F	7,105	7
-10 / -6	1	60 °F	6,619	8	0	70 °F	7,592	0	0	70 °F	7,592	2
-15 / -11	1	60 °F	7,105	4	0	70 °F	8,079	0	0	70 °F	8,079	0
-20 / -16	0	60 °F	7,592	1	0	70 °F	8,565	0	0	70 °F	8,565	0
Totals	237			756	1,281			3,812	333			1,142

City of Newton
Brown Middle School
Thermostatic Radiator Valve Installations - NORESCO Annual Energy Savings

V. Proposed Control System - Estimated Annual Heating Energy Usage - Unoccupied Hours

Building: Brown Middle School
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	Heating Energy Usage 12 AM To 8 AM			Daily Time Period	Heating Energy Usage 8 AM To 4 PM			Daily Time Period	Heating Energy Usage 4 PM To 12 AM		
	12 AM To 8 AM	Proposed Average Space Temp.	Proposed Average MBH	Space Heating Annual MMBtu	8 AM To 4 PM	Proposed Average Space Temp.	Proposed Average MBH	Space Heating Annual MMBtu	4 PM To 12 AM	Proposed Average Space Temp.	Proposed Average MBH	Space Heating Annual MMBtu
	Heating Hours				Heating Hours				Heating Hours			
95 / 99	0	60 °F	0	0	0	60 °F	0	0	0	60 °F	0	0
90 / 94	0	60 °F	0	0	0	60 °F	0	0	0	60 °F	0	0
85 / 89	0	60 °F	0	0	0	60 °F	0	0	0	60 °F	0	0
80 / 84	0	60 °F	0	0	0	60 °F	0	0	1	60 °F	0	0
75 / 79	0	60 °F	0	0	0	60 °F	0	0	2	60 °F	0	0
70 / 74	1	60 °F	0	0	1	60 °F	0	0	5	60 °F	0	0
65 / 69	3	60 °F	0	0	1	60 °F	0	0	12	60 °F	0	0
60 / 64	12	60 °F	0	0	2	60 °F	0	0	22	60 °F	0	0
55 / 59	25	60 °F	0	0	3	60 °F	0	0	37	60 °F	0	0
50 / 54	44	60 °F	779	35	3	60 °F	779	3	53	60 °F	779	41
45 / 49	63	60 °F	1,265	80	4	60 °F	1,265	5	72	60 °F	1,265	91
40 / 44	91	60 °F	1,752	159	6	60 °F	1,752	11	107	60 °F	1,752	188
35 / 39	140	60 °F	2,239	313	7	60 °F	2,239	16	154	60 °F	2,239	345
30 / 34	192	60 °F	2,725	523	7	60 °F	2,725	19	176	60 °F	2,725	480
25 / 29	149	60 °F	3,212	480	5	60 °F	3,212	16	127	60 °F	3,212	408
20 / 24	119	60 °F	3,699	441	3	60 °F	3,699	12	93	60 °F	3,699	345
15 / 19	84	60 °F	4,185	352	2	60 °F	4,185	9	64	60 °F	4,185	266
10 / 14	67	60 °F	4,672	311	1	60 °F	4,672	5	40	60 °F	4,672	187
5 / 9	52	60 °F	5,159	268	1	60 °F	5,159	3	23	60 °F	5,159	119
0 / 4	29	60 °F	5,645	166	0	60 °F	5,645	1	7	60 °F	5,645	38
-5 / -1	11	60 °F	6,132	65	0	60 °F	6,132	0	3	60 °F	6,132	18
-10 / -6	6	60 °F	6,619	38	0	60 °F	6,619	0	1	60 °F	6,619	5
-15 / -11	2	60 °F	7,105	18	0	60 °F	7,105	0	0	60 °F	7,105	0
-20 / -16	1	60 °F	7,592	6	0	60 °F	7,592	0	0	60 °F	7,592	0
Totals	1,091			3,253	47			102	998			2,531

City of Newton Brown Middle School Thermostatic Radiator Valve Installations - NORESCO Annual Energy Savings

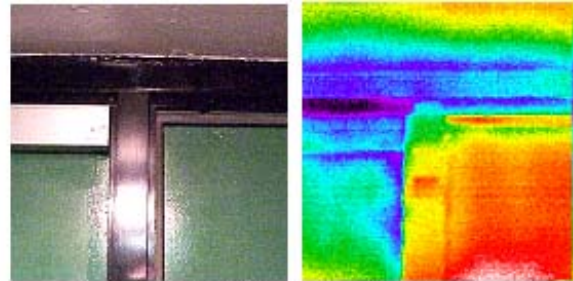
VI. Proposed Control System - Estimated Annual Heating Energy Savings

Annual Heating Energy Savings Summary				
		Annual Space Heating Energy Use		
		Existing	Proposed	Saved
	Total Space Heating End-Use MMBtu	1,225	1,160	65
	Estimated Average Boiler/Distribution Efficiency	60%	60%	
	Calculated Annual Space Heating Therms	20,415	19,328	1,087
	Space Heating Input Btu/SF/Year	13,983	13,238	745

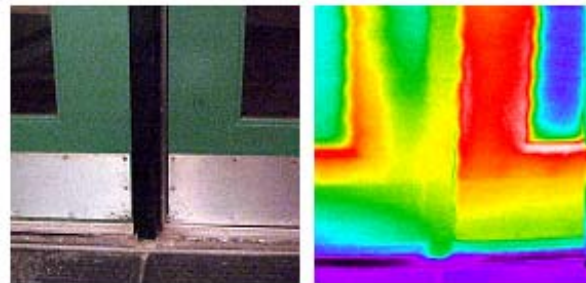
WEATHERIZATION AND ATTIC INSULATION

Overview

Infiltration and exfiltration, or “air leakage”, can have a significant impact on the overall energy consumption of a building. Infiltration is primarily caused by ineffective weather stripping, cracks between door or window frames and walls, unsealed joints between roofs and walls, uncaulked exterior penetrations, and insufficient attic insulation. These issues all contribute to building envelope losses during heating and cooling seasons, and can present vapor barrier issues. Correcting these building envelope issues can effectively minimize heating and cooling losses, increase system efficiency, and improve occupant comfort by reducing drafts and localized space temperature variations.



Typical Exterior Door (Top)



Typical Exterior Door (Bottom)

NORESCO will implement weatherization improvements to reduce infiltration and exfiltration, and install insulation to reduce thermal transmission losses. Under these improvements, NORESO will:

- Install weather stripping on exterior doors;
- Seal selected envelope penetrations such as rooftop vents, roof/wall joints, soffits, pipe penetrations, and dampers;
- Install attic insulation at City Hall and Oak Hill Middle School

The following City of Newton buildings are included:

- Bigelow Middle School
- Brown Middle School
- Oak Hill Middle School
- Education Center
- City Hall
- Police Headquarters
- Police Annex
- Police Garage

Detailed Description

Existing System

The majority of the exterior doors on the school and city buildings have inadequate weather stripping. The lack of a weather-tight seal on exterior penetrations contributes to unnecessary energy loss on a year-round basis from both conditioned air exfiltration and unconditioned air infiltration. In some buildings there are gaps where the exterior walls meet the roof decking, and around rooftop penetrations. These open spaces result in air leakage into the building or exterior vented soffits.

Additionally, the existing insulation in the Oak Hill Middle School and City Hall attics was found to be deficient in some areas, with insulation level ratings in these areas ranging from R-3 to R-10. This level of insulation in a harsh climate such as Massachusetts' is inadequate, and contributes to excessive energy losses and, potentially, to less than optimal comfort conditions, particularly on the upper floors.

Outdoor air is conditioned to provide heating or cooling to the various areas throughout the buildings. To provide for efficient operation, during heating and cooling seasons, the amount of unconditioned, non-ventilating outdoor air introduced into a facility should be minimized.

Recommended Improvements

NORESCO will weatherize and insulate these City of Newton buildings to reduce infiltration, exfiltration, and transmission losses. These improvements will deliver heating and cooling savings and reduce drafts and energy losses from the exterior envelope, while also improving space comfort conditions. With these improvements, NORESKO will:

- Install weather stripping on exterior doors;
- Seal selected envelope penetrations such as rooftop vents, roof/wall joints, soffits, pipe penetrations, and dampers; and
- Install attic insulation.

Weather Strip Exterior Doors

NORESCO will install heavy-duty weather stripping on exterior doors to significantly reduce infiltration and exfiltration. Caulking of the carrier assembly to the jamb and doorframe will be provided to improve overall door weather-tightness.

Seal Penetrations

NORESCO will seal identified open penetrations such as rooftop vents, roof/wall joints, soffits, pipe penetrations, and dampers.

Insulate Attics

Newton City Hall and the Oak Hill Middle School have large, poorly insulated, well ventilated, attic spaces. Both buildings have an average of six inches of poorly maintained fiberglass batt insulation with large penetrations, in the attic floors (air barrier). In City Hall and the Oak Hill

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Middle School NORESO will install blown-in cellulose insulation to a depth providing an insulation value of R-38.

NORESCO does not recommend installing insulation in the remaining six buildings. The remaining six facilities do not have attic spaces. These buildings, with the exception of the Administration Annex buildings, all have foam roof systems. The annex buildings have an attic space with no air barrier. The attics consist of six-inch fiberglass batting lying on top of a suspended ceiling. The attic space is well ventilated and without a proper air barrier (i.e. sheetrock) adding insulation is not recommended.

Scope of Work

Weatherization

Exterior Doors

NORESCO will install new, heavy-duty weather stripping on single and double doors at the following buildings:

- Bigelow Middle School
- Brown Middle School
- Oak Hill Middle School
- Education Center
- City Hall
- Police Headquarters
- Police Annex
- Police Garage

Penetrations

NORESCO will seal selected envelope penetrations such as rooftop vents, roof/wall joints, soffits, pipe penetrations, and dampers.

Weatherization Summary Table – Exterior Doors & Penetrations

Building	Single Doors	Double Doors	Rooftop Ventilators	Additional Scope
Bigelow Middle School	4	12	17 (112 LF)	33' – Roof/Wall Joint to be sealed 1 - Airseal Air Intake Duct, no longer in service, to be sealed
Brown Middle School	13	10	46 (264 LF)	367' – Roof/Wall Joint to be sealed
Oak Hill Middle School	8	11	24 (188 LF)	1,720' - Roof/Wall Joint and Air-Barrier Joint sealing (attics 1 & 2 above Rooms 210 & 230) 20 Sq. Ft. - Attic Bypass to be sealed (attic 4 above Art room) 100 Sq. Ft. - Attic Bypass to be sealed (attic 3 above Rooms 243 –

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Building	Single Doors	Double Doors	Rooftop Ventilators	Additional Scope
				251)
Education Center	9	3	15 (120 LF)	158' – Roof/Wall Joint to be sealed (in crawl space above rooms 300 and 301 addition)
Ed Center - Annex	10	-	-	-
Subtotal – Schools	44	36	102 (684 LF)	-
City Hall	3	9	-	50 Sq. Ft. - Attic Bypass to be sealed
Police Headquarters	3	-	6 (24 LF)	1 - Overhead Door to be weatherstripped
Police Garage	2	-	-	40' - Air sealing around wall in place of former overhead door 4 - Pipe Penetrations to be sealed
Police Annex	5	-	-	-
Subtotal – City Bldgs	13	9	6 (24 LF)	
TOTAL	57	45	108 (708 LF)	

Note: LF = Linear Feet

Weatherization Improvements: Exterior Doors & Penetrations

Bigelow Middle School

- 4 Single Commercial Doors to be weather-stripped
- 12 Double Commercial Doors to be weather-stripped
- 17 Roof Top Ventilators to be opened, perimeter sealed, dampers lubricated, 112 linear feet
- 33' Roof Wall Joint to be sealed
- 1 Airseal Air Intake Duct, no longer in service, to be sealed

Brown Middle School

- 13 Single Commercial Doors to be weather-stripped
- 10 Double Commercial Doors to be weather-stripped
- 46 Roof Top Ventilators to be opened, perimeter sealed, dampers lubricated, 264 linear feet
- 367' Roof Wall Joint to be sealed

Oak Hill Middle School

- 8 Single Commercial Doors to be weather-stripped
- 11 Double Commercial Doors to be weather-stripped
- 24 Roof Top Ventilators to be opened, perimeter sealed, dampers lubricated, 188 linear feet
- 1,720' Seal Attic Bypass at Roof/Wall Joint & Air-Barrier Joints (attics 1 & 2 above 210 & 230)

Education Center

- 9 Single Commercial Doors to be weather-stripped

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- 3 Double Commercial Doors to be weather-stripped
- 10 Single Commercial Doors to be weather-stripped (annex building)
- 15 Roof Top Ventilators to be opened, perimeter sealed, dampers lubricated, 120 linear feet
- 158' Roof Wall Joint to be sealed (in crawl space above rooms 300 and 301 addition)

Newton City Hall

- 1 Single Commercial Door to be weather-stripped
- 2 Single Commercial (attic access) Doors to be weather-stripped
- 9 Double Commercial Doors to be weather-stripped
- 50 Square feet of attic bypass to be sealed

Police Station

- 3 Single Commercial Doors to be weather-stripped
- 1 Overhead Door to be weather-stripped
- 6 Roof Top Ventilators to be opened, perimeter sealed, dampers lubricated, 24 linear feet

Police Garage

- 2 Single Commercial Doors to be weather-stripped
- 40' Air sealing around stick built wall in place of roll-up
- 4 Pipe Penetrations to be sealed

Police Annex

- 5 Single Commercial Doors to be weather-stripped

Attic Insulation

NORES CO will install blown-in cellulose insulation to a depth providing an insulation value of R-38. This insulation will be installed in the identified areas in the attics of the Oak Hill Middle School and City Hall, and will be installed over any existing floor joists.

Attic Insulation Summary Table

Building	Scope
Oak Hill Middle School	5,616 Sq.Ft. Cellulose to be installed (Attic 3 above Rooms 243 – 251) 1,120 Sq.Ft. Cellulose to be installed (Attic 4 above Art room)
City Hall	15,204 Sq.Ft. Cellulose to be installed in attic space (Attic space above office areas, front entrance)
Total	21,940 Sq. Ft.

Interface with Existing Systems and Operations

Impact on Facility Operations and Performance

The facility will benefit from reduced energy consumption due to a reduction in building envelope heating and cooling losses, and improved occupant comfort for those near exterior building doors or drafty areas.

Maintenance

NORESCO expects maintenance of the installed systems to be comparable to current maintenance requirements.

For the weather-stripping, the life expectancy is ten years for the door seals and five years for the door sweeps.

Customer Training

NORESCO will provide O&M manuals for the installed equipment.

Equipment Information

Manufacturer and Type

NORESCO will install QDS-650 “Q-LON” weatherstripping as manufactured by Schlegel, or approved equal.

- **Schlegel Systems Inc.**, 1555 Jefferson Road, Rochester NY 14623 (585) 427-7200

Weatherization & Attic Insulation
I. Energy Savings Calculations

Bigelow Middle School
Energy Savings Analysis - Weatherization

Space Heating Energy Savings (Continued)

II. Building Envelope Improvements - Heating System Design And Operational Data

Building Envelope Components - Overall Energy Reduction Factor						Heating System - Annual Months Of Operation:			
Design U*A Difference - Btu/Hr/Deg. F						956			
							Month	Percent Time Enabled	
<u>Heating System Design Data</u>							Jan	100%	
Heating System Fuel Type						Gas	Feb	100%	
Heating System Seasonal Efficiency						65%	Mar	50%	
							Apr	25%	
							May	0%	
							Jun	0%	
<u>Daily/Weekly HVAC Systems Operating Schedule</u>							Jul	0%	
							Aug	0%	
Building Occupancy Schedule HVAC Operating Schedule			Percent Occupied Times By Daily Time Period				Sep	0%	
							Oct	25%	
			12 AM To 8 AM	8 AM To 4 PM	4 PM To 12 AM		Nov	50%	
							Dec	100%	
				Start	End				
Monday	6:00 AM	7:00 PM	25%	100%	38%				
Tuesday	6:00 AM	7:00 PM	25%	100%	38%	<u>Space Heating - Temperature Setpoints</u>			
Wednesday	6:00 AM	7:00 PM	25%	100%	38%				
Thursday	6:00 AM	7:00 PM	25%	100%	38%	Heating System "Lockout" Outside Air Temperature		60 °F	
Friday	6:00 AM	7:00 PM	25%	100%	38%	Setback In Place? (Y/N)		Y	
Saturday	12:00 AM	12:00 AM	15%	15%	15%	Heating Indoor Occupied Temperature Setpoint		70 °F	
Sunday	12:00 AM	12:00 AM	15%	15%	15%	Heating Indoor Unoccupied Temperature Setpoint		55 °F	
Operating Percentage - Annual Total			22%	76%	31%				
Annual Occupied Hours Per Period			646	2,208	907				
Total Annual Occupied Hours			3,761	43%					

Bigelow Middle School
Energy Savings Analysis - Weatherization

Space Heating Energy Savings (Continued)

III. Building Envelope Improvements - Estimated Annual Space Heating Energy Savings

Outside Air Temp. Bin Deg. F	Occupied Operation Space Heating Energy Savings			Unoccupied Operation Space Heating Energy Savings		
	Space Heating Total Annual Occupied Hours	Heating System Average End-Use MBH Reduced	Heating Energy Usage Annual MMBtu Saved	Space Heating Total Annual Unoccupied Hours	Heating System Average End-Use MBH Reduced	Heating Energy Usage Annual MMBtu Saved
95 / 99	0	0	0	0	0.00	0.00
90 / 94	0	0	0	0	0.00	0.00
85 / 89	0	0	0	0	0.00	0.00
80 / 84	1	0	0	0	0.00	0.00
75 / 79	3	0	0	1	0.00	0.00
70 / 74	6	0	0	3	0.00	0.00
65 / 69	14	0	0	9	0.00	0.00
60 / 64	28	0	0	24	0.00	0.00
55 / 59	47	19	1	43	0.00	0.00
50 / 54	68	26	2	68	4.41	0.30
45 / 49	93	34	3	99	11.77	1.17
40 / 44	154	41	6	163	19.13	3.12
35 / 39	210	49	10	256	26.48	6.77
30 / 34	241	56	13	335	33.84	11.33
25 / 29	187	63	12	263	41.19	10.82
20 / 24	135	71	10	207	48.55	10.05
15 / 19	94	78	7	148	55.91	8.29
10 / 14	58	85	5	105	63.26	6.66
5 / 9	35	93	3	74	70.62	5.20
0 / 4	15	100	2	35	77.98	2.75
-5 / -1	6	107	1	13	85.33	1.14
-10 / -6	2	115	0	6	92.69	0.57
-15 / -11	1	122	0	2	100.04	0.23
-20 / -16	0	129	0	1	107.40	0.08
	1,399		75	1,857		68.50

Summary Of Annual Space Heating Energy Savings	
Total Annual End-Use MMBtu Saved:	144
Seasonal Boiler Efficiency:	65%
Annual Therms Saved:	2,211

NORESCO
Energy Savings Analysis - Building Envelope Improvements

Brown Middle School Space Heating Energy Savings (Continued)

III. Building Envelope Improvements - Estimated Annual Space Heating Energy Savings

Outside Air Temp. Bin Deg. F	Occupied Operation Space Heating Energy Savings			Unoccupied Operation Space Heating Energy Savings		
	Space Heating Total Annual Occupied Hours	Heating System Average End-Use MBH Reduced	Heating Energy Usage Annual MMBtu Saved	Space Heating Total Annual Unoccupied Hours	Heating System Average End-Use MBH Reduced	Heating Energy Usage Annual MMBtu Saved
95 / 99	0	0	0	0	0.00	0.00
90 / 94	0	0	0	0	0.00	0.00
85 / 89	0	0	0	0	0.00	0.00
80 / 84	1	0	0	0	0.00	0.00
75 / 79	4	0	0	1	0.00	0.00
70 / 74	7	0	0	2	0.00	0.00
65 / 69	15	0	0	8	0.00	0.00
60 / 64	30	0	0	22	0.00	0.00
55 / 59	48	25	1	41	0.00	0.00
50 / 54	68	34	2	68	5.67	0.39
45 / 49	92	43	4	101	15.13	1.53
40 / 44	152	53	8	166	24.58	4.07
35 / 39	198	62	12	268	34.04	9.13
30 / 34	217	72	16	358	43.49	15.58
25 / 29	169	81	14	281	52.94	14.85
20 / 24	119	91	11	224	62.40	13.95
15 / 19	82	100	8	160	71.85	11.52
10 / 14	48	110	5	115	81.31	9.35
5 / 9	29	119	3	80	90.76	7.28
0 / 4	13	129	2	38	100.21	3.79
-5 / -1	5	138	1	14	109.67	1.59
-10 / -6	1	147	0	7	119.12	0.79
-15 / -11	1	157	0	2	128.58	0.32
-20 / -16	0	166	0	1	138.03	0.11
	1,298		87	1,958		94.25

Summary Of Annual Space Heating Energy Savings	
Total Annual End-Use MMBtu Saved:	182
Seasonal Boiler Efficiency:	60%
Annual Therms Saved:	3,029

Oak Hill Middle School Energy Savings Analysis - Building Envelope Improvements

I. Existing And Proposed Building Components - Energy Use Factors

Overall Reduction In U*A Value With Building Envelope Improvements:	2,783.3
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Oak Hill Middle School Energy Savings Analysis - Building Envelope Improvements

II. Building Envelope Improvements - Heating System Design And Operational Data

Page 2 Of 3

NORESCO

Oak Hill Middle School Energy Savings Analysis - Building Envelope Improvements

Space Heating Energy Savings (Continued)

III. Building Envelope Improvements - Estimated Annual Space Heating Energy Savings

Outside Air Temp. Bin Deg. F	Occupied Operation Space Heating Energy Savings			Unoccupied Operation Space Heating Energy Savings		
	Space Heating Total Annual Occupied Hours	Heating System Average End-Use MBH Reduced	Heating Energy Usage Annual MMBtu Saved	Space Heating Total Annual Unoccupied Hours	Heating System Average End-Use MBH Reduced	Heating Energy Usage Annual MMBtu Saved
95 / 99	0	0	0	0	0.00	0.00
90 / 94	0	0	0	0	0.00	0.00
85 / 89	0	0	0	0	0.00	0.00
80 / 84	1	0	0	0	0.00	0.00
75 / 79	3	0	0	2	0.00	0.00
70 / 74	6	0	0	3	0.00	0.00
65 / 69	12	0	0	11	0.00	0.00
60 / 64	24	0	0	28	0.00	0.00
55 / 59	40	0	0	50	0.00	0.00
50 / 54	57	61	3	80	10.18	0.81
45 / 49	76	78	6	116	27.15	3.16
40 / 44	127	95	12	191	44.12	8.44
35 / 39	166	112	19	300	61.10	18.32
30 / 34	186	129	24	390	78.07	30.45
25 / 29	145	146	21	305	95.04	28.94
20 / 24	103	163	17	239	112.01	26.78
15 / 19	72	180	13	171	128.98	22.00
10 / 14	44	197	9	119	145.95	17.43
5 / 9	27	214	6	82	162.92	13.32
0 / 4	13	231	3	38	179.89	6.78
-5 / -1	5	248	1	14	196.87	2.84
-10 / -6	2	265	0	6	213.84	1.37
-15 / -11	1	282	0	2	230.81	0.54
-20 / -16	0	299	0	1	247.78	0.19
	1,108		134	2,148		181.36

Summary Of Annual Space Heating Energy Savings	
Total Annual End-Use MMBtu Saved:	315
Seasonal Boiler Efficiency:	82%
Annual Therms Saved:	3,847

4.6%

Oak Hill Middle School Energy Savings Analysis - Building Envelope Improvements

I. Existing And Proposed Building Components - Energy Use Factors

Overall Reduction In U*A Value With Building Envelope Improvements:	2,068.1
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Oak Hill Middle School Energy Savings Analysis - Building Envelope Improvements

II. Building Envelope Improvements - Heating System Design And Operational Data

Page 2 Of 3

NORESCO

Oak Hill Middle School Energy Savings Analysis - Building Envelope Improvements

Space Heating Energy Savings (Continued)

III. Building Envelope Improvements - Estimated Annual Space Heating Energy Savings

Outside Air Temp. Bin Deg. F	Occupied Operation Space Heating Energy Savings			Unoccupied Operation Space Heating Energy Savings		
	Space Heating Total Annual Occupied Hours	Heating System Average End-Use MBH Reduced	Heating Energy Usage Annual MMBtu Saved	Space Heating Total Annual Unoccupied Hours	Heating System Average End-Use MBH Reduced	Heating Energy Usage Annual MMBtu Saved
95 / 99	0	0	0	0	0.00	0.00
90 / 94	0	0	0	0	0.00	0.00
85 / 89	0	0	0	0	0.00	0.00
80 / 84	1	0	0	0	0.00	0.00
75 / 79	3	0	0	2	0.00	0.00
70 / 74	6	0	0	3	0.00	0.00
65 / 69	12	0	0	11	0.00	0.00
60 / 64	24	0	0	28	0.00	0.00
55 / 59	40	0	0	50	0.00	0.00
50 / 54	57	45	3	80	7.57	0.60
45 / 49	76	58	4	116	20.18	2.35
40 / 44	127	71	9	191	32.79	6.27
35 / 39	166	83	14	300	45.40	13.61
30 / 34	186	96	18	390	58.01	22.62
25 / 29	145	108	16	305	70.62	21.50
20 / 24	103	121	12	239	83.23	19.90
15 / 19	72	134	10	171	95.84	16.35
10 / 14	44	146	6	119	108.45	12.95
5 / 9	27	159	4	82	121.06	9.90
0 / 4	13	171	2	38	133.67	5.04
-5 / -1	5	184	1	14	146.28	2.11
-10 / -6	2	197	0	6	158.89	1.02
-15 / -11	1	209	0	2	171.50	0.40
-20 / -16	0	222	0	1	184.11	0.14
	1,108		100	2,148		134.76

Summary Of Annual Space Heating Energy Savings	
Total Annual End-Use MMBtu Saved:	234
Seasonal Boiler Efficiency:	82%
Annual Therms Saved:	2,858

3.4%

NORESCO
Energy Savings Analysis - Building Envelope Improvements

Education Center - Space Heating Energy Savings (Continued)

II. Building Envelope Improvements - Heating System Design And Operational Data

Building Envelope Components - Overall Energy Reduction Factor						Heating System - Annual Months Of Operation:			
Design U*A Difference - Btu/Hr/Deg. F		1,038							
					Month	Percent Time Enabled			
<u>Heating System Design Data</u>					Jan	100%			
Heating System Fuel Type		Gas			Feb	100%			
Heating System Seasonal Efficiency		80%			Mar	50%			
					Apr	25%			
					May	0%			
					Jun	0%			
<u>Daily/Weekly HVAC Systems Operating Schedule</u>					Jul	0%			
					Aug	0%			
Building Occupancy Schedule		Percent Occupied Times			Sep	0%			
HVAC Operating Schedule		By Daily Time Period			Oct	25%			
		12 AM To 8 AM	8 AM To 4 PM	4 PM To 12 AM		Nov	50%		
						Dec	100%		
	Start	End							
Monday	7:30 AM	9:30 PM	6%	100%	69%				
Tuesday	7:30 AM	9:30 PM	6%	100%	69%	<u>Space Heating - Temperature Setpoints</u>			
Wednesday	8:00 AM	9:00 PM	0%	100%	63%				
Thursday	6:00 AM	7:30 PM	25%	100%	44%	Heating System "Lockout" Outside Air Temperature		55 °F	
Friday	5:00 AM	11:59 PM	38%	100%	100%	Setback In Place? (Y/N)		Y	
Saturday	12:00 AM	7:00 AM	88%	0%	0%	Heating Indoor Occupied Temperature Setpoint		70 °F	
Sunday	5:00 AM	8:00 AM	38%	0%	0%	Heating Indoor Unoccupied Temperature Setpoint		55 °F	
Operating Percentage - Annual Total			29%	71%	49%				
Annual Occupied Hours Per Period			834	2,083	1,433				
Total Annual Occupied Hours			4,350	50%					

NORESCO
Energy Savings Analysis - Building Envelope Improvements

Education Center - Space Heating Energy Savings (Continued)

III. Building Envelope Improvements - Estimated Annual Space Heating Energy Savings

Outside Air Temp. Bin Deg. F	Occupied Operation Space Heating Energy Savings			Unoccupied Operation Space Heating Energy Savings		
	Space Heating Total Annual Occupied Hours	Heating System Average End-Use MBH Reduced	Heating Energy Usage Annual MMBtu Saved	Space Heating Total Annual Unoccupied Hours	Heating System Average End-Use MBH Reduced	Heating Energy Usage Annual MMBtu Saved
95 / 99	0	0	0	0	0.00	0.00
90 / 94	0	0	0	0	0.00	0.00
85 / 89	0	0	0	0	0.00	0.00
80 / 84	1	0	0	0	0.00	0.00
75 / 79	3	0	0	1	0.00	0.00
70 / 74	6	0	0	3	0.00	0.00
65 / 69	14	0	0	9	0.00	0.00
60 / 64	30	0	0	22	0.00	0.00
55 / 59	51	0	0	39	0.00	0.00
50 / 54	75	23	2	62	3.89	0.24
45 / 49	104	30	3	89	10.38	0.92
40 / 44	172	36	6	146	16.87	2.46
35 / 39	241	43	10	225	23.36	5.26
30 / 34	283	49	14	293	29.85	8.75
25 / 29	219	56	12	230	36.34	8.37
20 / 24	161	62	10	181	42.83	7.75
15 / 19	113	69	8	130	49.32	6.39
10 / 14	71	75	5	92	55.81	5.14
5 / 9	44	82	4	65	62.30	4.03
0 / 4	19	88	2	32	68.78	2.18
-5 / -1	7	95	1	12	75.27	0.90
-10 / -6	2	101	0	6	81.76	0.45
-15 / -11	1	108	0	2	88.25	0.19
-20 / -16	0	114	0	1	94.74	0.07
	1,618		77	1,638		53.10

Summary Of Annual Space Heating Energy Savings	
Total Annual End-Use MMBtu Saved:	130
Seasonal Boiler Efficiency:	80%
Annual Therms Saved:	1,627

NORESCO
Energy Savings Analysis - Building Envelope Improvements

City Hall - Space Heating Energy Savings (Continued)

II. Building Envelope Improvements - Heating System Design And Operational Data

Building Envelope Components - Overall Energy Reduction Factor						Heating System - Annual Months Of Operation:			
Design U*A Difference - Btu/Hr/Deg. F						1,295			
							Month	Percent Time Enabled	
<u>Heating System Design Data</u>							Jan	100%	
Heating System Fuel Type						Gas	Feb	100%	
Heating System Seasonal Efficiency						80%	Mar	50%	
							Apr	25%	
							May	0%	
							Jun	0%	
<u>Daily/Weekly HVAC Systems Operating Schedule</u>							Jul	0%	
							Aug	0%	
Building Occupancy Schedule HVAC Operating Schedule			Percent Occupied Times By Daily Time Period				Sep	0%	
							Oct	25%	
			12 AM To 8 AM	8 AM To 4 PM	4 PM To 12 AM		Nov	50%	
							Dec	100%	
	Start	End							
Monday	7:30 AM	9:30 PM	6%	100%	69%				
Tuesday	7:30 AM	9:30 PM	6%	100%	69%	<u>Space Heating - Temperature Setpoints</u>			
Wednesday	8:00 AM	9:00 PM	0%	100%	63%				
Thursday	6:00 AM	7:30 PM	25%	100%	44%	Heating System "Lockout" Outside Air Temperature		60 °F	
Friday	5:00 AM	11:59 PM	38%	100%	100%	Setback In Place? (Y/N)		Y	
Saturday	12:00 AM	7:00 AM	88%	0%	0%	Heating Indoor Occupied Temperature Setpoint		70 °F	
Sunday	5:00 AM	8:00 AM	38%	0%	0%	Heating Indoor Unoccupied Temperature Setpoint		55 °F	
Operating Percentage - Annual Total			29%	71%	49%				
Annual Occupied Hours Per Period			834	2,083	1,433				
Total Annual Occupied Hours			4,350	50%					

NORESCO
Energy Savings Analysis - Building Envelope Improvements

City Hall - Space Heating Energy Savings (Continued)

III. Building Envelope Improvements - Estimated Annual Space Heating Energy Savings

Outside Air Temp. Bin Deg. F	Occupied Operation Space Heating Energy Savings			Unoccupied Operation Space Heating Energy Savings		
	Space Heating Total Annual Occupied Hours	Heating System Average End-Use MBH Reduced	Heating Energy Usage Annual MMBtu Saved	Space Heating Total Annual Unoccupied Hours	Heating System Average End-Use MBH Reduced	Heating Energy Usage Annual MMBtu Saved
95 / 99	0	0	0	0	0.00	0.00
90 / 94	0	0	0	0	0.00	0.00
85 / 89	0	0	0	0	0.00	0.00
80 / 84	1	0	0	0	0.00	0.00
75 / 79	3	0	0	1	0.00	0.00
70 / 74	6	0	0	3	0.00	0.00
65 / 69	14	0	0	9	0.00	0.00
60 / 64	30	0	0	22	0.00	0.00
55 / 59	51	21	1	39	0.00	0.00
50 / 54	75	29	2	62	4.86	0.30
45 / 49	104	37	4	89	12.95	1.15
40 / 44	172	45	8	146	21.05	3.07
35 / 39	241	53	13	225	29.14	6.56
30 / 34	283	62	17	293	37.24	10.92
25 / 29	219	70	15	230	45.33	10.44
20 / 24	161	78	13	181	53.43	9.67
15 / 19	113	86	10	130	61.52	7.97
10 / 14	71	94	7	92	69.61	6.42
5 / 9	44	102	5	65	77.71	5.03
0 / 4	19	110	2	32	85.80	2.72
-5 / -1	7	118	1	12	93.90	1.12
-10 / -6	2	126	0	6	101.99	0.56
-15 / -11	1	134	0	2	110.09	0.24
-20 / -16	0	142	0	1	118.18	0.08
	1,618		97	1,638		66.24

Summary Of Annual Space Heating Energy Savings	
Total Annual End-Use MMBtu Saved:	163
Seasonal Boiler Efficiency:	80%
Annual Therms Saved:	2,043

NORESCO
Energy Savings Analysis - Building Envelope Improvements

Energy Savings Analysis - Building Envelope Improvements

City Hall - Space Heating Energy Savings

I. Existing And Proposed Building Components - Energy Use Factors

[illegible]

Energy Savings Analysis - Building Envelope Improvements

II. Building Envelope Improvements - Heating System Design And Operational Data

Page 2 Of 3

NORESCO
Energy Savings Analysis - Building Envelope Improvements

City Hall - Space Heating Energy Savings (Continued)

III. Building Envelope Improvements - Estimated Annual Space Heating Energy Savings

Outside Air Temp. Bin Deg. F	Occupied Operation Space Heating Energy Savings			Unoccupied Operation Space Heating Energy Savings		
	Space Heating Total Annual Occupied Hours	Heating System Average End-Use MBH Reduced	Heating Energy Usage Annual MMBtu Saved	Space Heating Total Annual Unoccupied Hours	Heating System Average End-Use MBH Reduced	Heating Energy Usage Annual MMBtu Saved
95 / 99	0	0	0	0	0.00	0.00
90 / 94	0	0	0	0	0.00	0.00
85 / 89	0	0	0	0	0.00	0.00
80 / 84	1	0	0	0	0.00	0.00
75 / 79	3	0	0	1	0.00	0.00
70 / 74	6	0	0	3	0.00	0.00
65 / 69	14	0	0	9	0.00	0.00
60 / 64	30	0	0	22	0.00	0.00
55 / 59	51	0	0	39	0.00	0.00
50 / 54	75	25	2	62	4.14	0.26
45 / 49	104	32	3	89	11.05	0.98
40 / 44	172	39	7	146	17.96	2.62
35 / 39	241	46	11	225	24.87	5.60
30 / 34	283	53	15	293	31.78	9.32
25 / 29	219	59	13	230	38.68	8.91
20 / 24	161	66	11	181	45.59	8.25
15 / 19	113	73	8	130	52.50	6.80
10 / 14	71	80	6	92	59.41	5.48
5 / 9	44	87	4	65	66.32	4.29
0 / 4	19	94	2	32	73.22	2.32
-5 / -1	7	101	1	12	80.13	0.95
-10 / -6	2	108	0	6	87.04	0.48
-15 / -11	1	115	0	2	93.95	0.20
-20 / -16	0	122	0	1	100.86	0.07
	1,618		82	1,638		57

Summary Of Annual Space Heating Energy Savings	
Total Annual End-Use MMBtu Saved:	139
Seasonal Boiler Efficiency:	80%
Annual Therms Saved:	1,732

Police HQ - Space Heating Energy Savings

[illegible]

Energy Savings Analysis - Building Envelope Improvements

II. Building Envelope Improvements - Heating System Design And Operational Data

Page 2 Of 6

NORESCO

Energy Savings Analysis - Building Envelope Improvements

Police HQ - Space Heating Energy Savings (Continued)

III. Building Envelope Improvements - Estimated Annual Space Heating Energy Savings

Outside Air Temp. Bin Deg. F	Occupied Operation Space Heating Energy Savings			Unoccupied Operation Space Heating Energy Savings		
	Space Heating Total Annual Occupied Hours	Heating System Average End-Use MBH Reduced	Heating Energy Usage Annual MMBtu Saved	Space Heating Total Annual Unoccupied Hours	Heating System Average End-Use MBH Reduced	Heating Energy Usage Annual MMBtu Saved
95	0	0	0	0	0	0
90	0	0	0	0	0	0
85	0	0	0	0	0	0
80	1	0	0	0	0	0
75	5	0	0	0	0	0
70	10	0	0	0	0	0
65	25	0	0	0	0	0
60	57	0	0	0	0	0
55	101	0	0	0	0	0
50	159	0	0	0	0	0
45	220	6	1	0	0	0
40	349	8	3	0	0	0
35	498	9	5	0	0	0
30	602	11	6	0	0	0
25	463	12	6	0	0	0
20	349	13	5	0	0	0
15	244	15	4	0	0	0
10	163	16	3	0	0	0
5	109	18	2	0	0	0
0	51	19	1	0	0	0
-5	19	20	0	0	0	0
-10	8	22	0	0	0	0
-15	3	23	0	0	0	0
-20	1	24	0	0	0	0
	3,436		35	0		0.00

Summary Of Annual Space Heating Energy Savings	
Total Annual End-Use MMBtu Saved:	35
Seasonal Boiler Efficiency:	80%
Annual Therms Saved:	437

Energy Savings Analysis - Building Envelope Improvements

I. Existing And Proposed Building Components - Energy Use Factors

Overall Reduction In U*A Value With Building Envelope Improvements:	222.2
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NORESCO

Energy Savings Analysis - Building Envelope Improvements

Police HQ - Space Cooling Energy Savings (Continued)

II. Building Envelope Improvements - Cooling System Design And Operational Data

<u>Building Envelope Components - Overall Energy Reduction Factor</u>						<u>Cooling System - Annual Months Of Operation:</u>			
Design U*A Difference - Btu/Hr/Deg. F 222									
						Month	Percent Time Enabled		
<u>Cooling System Design Data</u>						Jan	0%		
						Feb	0%		
Cooling System Type CHW						Mar	0%		
						Apr	0%		
						May	50%		
						Jun	100%		
						Jul	100%		
<u>Daily/Weekly HVAC Systems Operating Schedule</u>						Aug	100%		
						Sep	100%		
Building Occupancy Schedule HVAC Operating Schedule				Percent Occupied Times By Daily Time Period			Oct	50%	
				12 AM To 8 AM	8 AM To 4 PM	4 PM To 12 AM	Nov	0%	
	Start	End					Dec	0%	
Monday	12:00 AM	11:59 PM	100%	100%	100%	<u>Space Cooling - Temperature Setpoints</u>			
Tuesday	12:00 AM	11:59 PM	100%	100%	100%				
Wednesday	12:00 AM	11:59 PM	100%	100%	100%	Mechanical Cooling System			
Thursday	12:00 AM	11:59 PM	100%	100%	100%	"Lockout" Outside Air Temperature 50 °F			
Friday	12:00 AM	11:59 PM	100%	100%	100%	Setback In Place? (Y/N) N			
Saturday	12:00 AM	11:59 PM	100%	100%	100%	Space Cooling Temperature Setpoint 70 °F			
Sunday	12:00 AM	11:59 PM	100%	100%	100%	Maximum Space Humidity 55% RH			
Operating Percentage - Annual Total			100%	100%	100%	Maximum Space Air Enthalpy Btu/Lb 26.3			
Annual Occupied Hours Per Period			2,918	2,916	2,920				
Total Annual Occupied Hours			8,754	100%					

NORESCO

Energy Savings Analysis - Building Envelope Improvements

Police HQ - Space Cooling Energy Savings (Continued)

III. Building Envelope Improvements - Estimated Annual Space Cooling Energy Savings

Outside Air Temp. Bin Deg. F	Outside Air Enthalpy Btu/Lb	Occupied Operation Space Cooling Energy Savings		
		Mechanical Cooling Total Annual Occupied Hours	Cooling System Average Load Reduced Tons	Cooling Energy Usage Annual Ton-Hours Saved
95	37.4	3	0.5	2
90	37.1	30	0.4	12
85	35.3	102	0.3	32
80	32.7	244	0.2	54
75	30.8	379	0.1	49
70	29.1	543	0.0	20
65	26.8	611	0.0	0
60	24.1	563	0.0	0
55	21.6	473	0.0	0
50	19.0	325	0.0	0
45	16.5	201	0.0	0
40	14.3	112	0.0	0
35	12.4	55	0.0	0
30	10.7	25	0.0	0
25	8.8	7	0.0	0
20	7.3	1	0.0	0
15	5.6	21	0.0	0
10	4.2	8	0.0	0
5	2.7	1	0.0	0
0	1.5	0	0.0	0
-5	0.1	0	0.0	0
-10	-1.2	0	0.0	0
-15	-2.5	0	0.0	0
-20	-3.9	0	0.0	0
		3,701		169

Summary Of Annual Space Cooling Energy Savings	
Total Annual Ton-Hours Saved:	169
Average kW Per Ton:	1.13
Annual kWh Saved:	191

Energy Savings Analysis - Building Envelope Improvements

I. Existing And Proposed Building Components - Energy Use Factors

Overall Reduction In U*A Value With Building Envelope Improvements:	106.2
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Energy Savings Analysis - Building Envelope Improvements

II. Building Envelope Improvements - Heating System Design And Operational Data

Page 2 Of 6

NORESCO
Energy Savings Analysis - Building Envelope Improvements

Police Annex - Space Heating Energy Savings (Continued)

III. Building Envelope Improvements - Estimated Annual Space Heating Energy Savings

Outside Air Temp. Bin Deg. F	Occupied Operation Space Heating Energy Savings			Unoccupied Operation Space Heating Energy Savings		
	Space Heating Total Annual Occupied Hours	Heating System Average End-Use MBH Reduced	Heating Energy Usage Annual MMBtu Saved	Space Heating Total Annual Unoccupied Hours	Heating System Average End-Use MBH Reduced	Heating Energy Usage Annual MMBtu Saved
95	0	0	0	0	0	0
90	0	0	0	0	0	0
85	0	0	0	0	0	0
80	1	0	0	0	0	0
75	5	0	0	0	0	0
70	8	0	0	1	0	0
65	19	0	0	4	0	0
60	40	0	0	11	0	0
55	67	0	0	22	0	0
50	99	0	0	36	0	0
45	135	3	0	53	1	0
40	221	3	1	87	2	0
35	306	4	1	142	2	0
30	358	5	2	190	3	1
25	276	5	1	148	3	1
20	204	6	1	119	4	0
15	144	7	1	85	5	0
10	92	7	1	62	5	0
5	59	8	0	44	6	0
0	27	8	0	21	7	0
-5	10	9	0	8	7	0
-10	4	10	0	4	8	0
-15	1	10	0	1	8	0
-20	1	11	0	1	9	0
	2,076		9	1,038		3.32

Summary Of Annual Space Heating Energy Savings	
Total Annual End-Use MMBtu Saved:	13
Seasonal Boiler Efficiency:	85%
Annual Therms Saved:	148

Energy Savings Analysis - Building Envelope Improvements

I. Existing And Proposed Building Components - Energy Use Factors

Overall Reduction In U*A Value With Building Envelope Improvements:	106.2
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NORESCO

Energy Savings Analysis - Building Envelope Improvements

Police Annex - Space Cooling Energy Savings (Continued)

II. Building Envelope Improvements - Cooling System Design And Operational Data

<u>Building Envelope Components - Overall Energy Reduction Factor</u>						<u>Cooling System - Annual Months Of Operation:</u>				
Design U*A Difference - Btu/Hr/Deg. F						106				
						Month	Percent Time Enabled			
<u>Cooling System Design Data</u>						Jan	0%			
						Feb	0%			
Cooling System Type						CHW	Mar	0%		
						Apr	0%			
						May	50%			
						Jun	100%			
						Jul	100%			
<u>Daily/Weekly HVAC Systems Operating Schedule</u>						Aug	100%			
						Sep	100%			
Building Occupancy Schedule				Percent Occupied Times			Oct	50%		
HVAC Operating Schedule				By Daily Time Period			Nov	0%		
				12 AM To 8 AM	8 AM To 4 PM	4 PM To 12 AM	Dec	0%		
	Start	End								
Monday	12:00 AM	11:59 PM		100%	100%	100%	<u>Space Cooling - Temperature Setpoints</u>			
Tuesday	12:00 AM	11:59 PM		100%	100%	100%				
Wednesday	12:00 AM	11:59 PM		100%	100%	100%	Mechanical Cooling System			
Thursday	12:00 AM	11:59 PM		100%	100%	100%	"Lockout" Outside Air Temperature			
Friday	12:00 AM	11:59 PM		100%	100%	100%	Setback In Place? (Y/N)			
Saturday	12:00 AM	11:59 PM		100%	100%	100%	Space Cooling Temperature Setpoint			
Sunday	12:00 AM	11:59 PM		100%	100%	100%	Maximum Space Humidity			
Operating Percentage - Annual Total				100%	100%	100%	Maximum Space Air Enthalpy Btu/Lb			
Annual Occupied Hours Per Period				2,918	2,916	2,920				
Total Annual Occupied Hours				8,754	100%					

NORESCO

Energy Savings Analysis - Building Envelope Improvements

Police Annex - Space Cooling Energy Savings (Continued)

III. Building Envelope Improvements - Estimated Annual Space Cooling Energy Savings

Outside Air Temp. Bin Deg. F	Outside Air Enthalpy Btu/Lb	Occupied Operation Space Cooling Energy Savings		
		Mechanical Cooling Total Annual Occupied Hours	Cooling System Average Load Reduced Tons	Cooling Energy Usage Annual Ton-Hours Saved
95	37.4	3	0.2	1
90	37.1	29	0.2	5
85	35.3	102	0.1	13
80	32.7	244	0.1	19
75	30.8	378	0.0	13
70	29.1	543	0.0	0
65	26.8	611	0.0	0
60	24.1	562	0.0	0
55	21.6	473	0.0	0
50	19.0	324	0.0	0
45	16.5	201	0.0	0
40	14.3	112	0.0	0
35	12.4	55	0.0	0
30	10.7	24	0.0	0
25	8.8	6	0.0	0
20	7.3	1	0.0	0
15	5.6	20	0.0	0
10	4.2	8	0.0	0
5	2.7	1	0.0	0
0	1.5	0	0.0	0
-5	0.1	0	0.0	0
-10	-1.2	0	0.0	0
-15	-2.5	0	0.0	0
-20	-3.9	0	0.0	0
		3,700		51

Summary Of Annual Space Cooling Energy Savings	
Total Annual Ton-Hours Saved:	51
Average kW Per Ton:	0.80
Annual kWh Saved:	41

Police Garage - Space Heating Energy Savings

Building Exposure Or Location	System	Window Or Door	Window Or Door Type	Qty.	Dimensions - Each Window Or Door			Window Or Door Energy Use Factors						Overall Total U*A Value Btu/Hr Per Deg.
					Height Inches	Width Inches	Area Sq. Ft.	U-Factor	Crack Width Inch	Crack Length Linear Feet	Infiltration CFM Per Linear Foot	Infiltration Total CFM	U*A Value Btu/Hr Per Deg.	
All	Existing	Door	Single Commercial	2					0.063	20.0	0.66	13.1	14.2	28
	Proposed	Door	Single Commercial	2					0.000	20.0	0.00	0.0	0.0	0
All	Existing		Pipe Penetrations	4					0.167	0.5	1.75	0.9	0.9	4
	Proposed		Pipe Penetrations	4					0.00	0.5	0.00	0.0	0.0	0
Roof	Existing		Roof Wall Joint	1					0.063	40.0	0.66	26.2	28.3	28
	Proposed		Roof Wall Joint	1					0.00	40.0	0.00	0.0	0.0	0
Overall Reduction In U*A Value With Building Envelope Improvements:														60.4

NORESCO
Energy Savings Analysis - Building Envelope Improvements

Police HQ - Space Heating Energy Savings (Continued)

II. Building Envelope Improvements - Heating System Design And Operational Data

Building Envelope Components - Overall Energy Reduction Factor						Heating System - Annual Months Of Operation:							
Design U*A Difference - Btu/Hr/Deg. F		60											
						Month	Percent Time Enabled						
<u>Heating System Design Data</u>													
Heating System Fuel Type		Gas						Jan	100%				
Heating System Seasonal Efficiency		85%						Feb	90%				
								Mar	50%				
								Apr	25%				
								May	0%				
								Jun	0%				
<u>Daily/Weekly HVAC Systems Operating Schedule</u>								Jul	0%				
								Aug	0%				
Building Occupancy Schedule HVAC Operating Schedule		Percent Occupied Times By Daily Time Period				Sep	0%						
						Oct	25%						
						Nov	50%						
						Dec	90%						
						12 AM To 8 AM		8 AM To 4 PM		4 PM To 12 AM			
						Start		End					
						Monday	12:00 AM	11:59 PM	25%	100%	50%		
						Tuesday	12:00 AM	11:59 PM	25%	100%	50%		
						Wednesday	12:00 AM	11:59 PM	25%	100%	50%		
						Thursday	12:00 AM	11:59 PM	25%	100%	50%		
Friday	12:00 AM	11:59 PM	25%	100%	50%								
Saturday	12:00 AM	11:59 PM	25%	100%	50%								
Sunday	12:00 AM	11:59 PM	25%	100%	50%								
Operating Percentage - Annual Total		25%		100%		50%							
Annual Occupied Hours Per Period		730		2,916		1,460							
Total Annual Occupied Hours		5,106		58%									

NORESCO

Energy Savings Analysis - Building Envelope Improvements

Police HQ - Space Heating Energy Savings (Continued)

III. Building Envelope Improvements - Estimated Annual Space Heating Energy Savings

Outside Air Temp. Bin Deg. F	Occupied Operation Space Heating Energy Savings			Unoccupied Operation Space Heating Energy Savings		
	Space Heating Total Annual Occupied Hours	Heating System Average End-Use MBH Reduced	Heating Energy Usage Annual MMBtu Saved	Space Heating Total Annual Unoccupied Hours	Heating System Average End-Use MBH Reduced	Heating Energy Usage Annual MMBtu Saved
95	0	0	0	0	0	0
90	0	0	0	0	0	0
85	0	0	0	0	0	0
80	1	0	0	0	0	0
75	5	0	0	0	0	0
70	8	0	0	1	0	0
65	19	0	0	4	0	0
60	38	0	0	13	0	0
55	63	1	0	26	0	0
50	91	1	0	43	0	0
45	124	2	0	65	1	0
40	203	2	0	105	1	0
35	275	2	1	173	1	0
30	311	3	1	236	2	0
25	239	3	1	185	2	0
20	173	3	1	150	2	0
15	121	4	0	108	3	0
10	74	4	0	81	3	0
5	44	4	0	59	3	0
0	18	5	0	29	4	0
-5	7	5	0	11	4	0
-10	2	6	0	6	4	0
-15	1	6	0	2	5	0
-20	0	6	0	1	5	0
	1,817		5	1,298		2.40

Summary Of Annual Space Heating Energy Savings	
Total Annual End-Use MMBtu Saved:	7
Seasonal Heating Efficiency:	85%
Annual Therms Saved:	83

ENERGY MANAGEMENT SYSTEMS IMPROVEMENTS

Overview

NORESCO will install new Direct Digital Control (DDC) Energy Management Systems (EMS), retro-commission existing controls, and install programmable thermostats for selected buildings. These improvements will allow for the comprehensive implementation of energy efficient control strategies and for improved monitoring and control of building HVAC equipment, as well as the ability to access building systems from a networked communication infrastructure via the internet and standard web browsers.

We have prepared two EMS options at the Bigelow and Brown Middle Schools, both of which will deliver energy savings and provide remote monitoring and control capability. **Option 1: Monitoring & Control** will provide new DDC energy management system controls, retro-commissioning of existing controls, and remote monitoring capability via the web. **Option 2: Expanded DDC Controls** is identical to Option 1 except that it will convert additional pneumatic controls to DDC at the Bigelow and Brown Middle Schools. Both Options 1 and 2 deliver the same energy savings and will both provide a greater ability for the maintenance staff to monitor and control the HVAC systems.

Description

The existing temperature control systems in the buildings are primarily of the electro-pneumatic type, with the exception of Oak Hill Middle School which has a legacy solid-state electric control system. Each of these standalone control systems are in place to provide control of HVAC equipment via sensors, transmitters, relays, and the operation of end devices such as valve and damper actuators. The existing electro-pneumatic control systems are original to the buildings and are quite complex in terms of the number of components and device connections required. Due to the difficulties involved in servicing and maintaining these types of systems, NORESKO believes that these existing controls do not provide operations that are energy efficient or that optimize the original design intent of the HVAC systems.

The building controls systems utilize pneumatic (or air powered) technology, which consists of tubes through which pressurized air is used to sense conditions and control equipment. Pneumatic systems by their nature do not meet today's standards for even minimal control as related to energy efficient performance. Pneumatic controls are basic in functionality, performance cannot be monitored, and their ability to adapt to changing conditions is limited. In pristine condition and optimized for functionality, these systems still cannot compete with even basic DDC systems in terms of functionality, performance, adaptability, service, and maintenance. DDC systems use computers, electronic hardware, and interactive software to allow numerous variables (including operator input) to control simple to complicated equipment and systems. The ability of these systems to automatically adapt to these changing conditions allows for the optimized operation of the building and its many interactive systems.

The new front-end (or software control center) includes a standardized system platform that will be the cornerstone of a city-wide system allowing for the seamless integration of new and existing DDC systems combined with remote system access via the internet using a laptop or home PC and standard web browsers. The system provides scalability, integration of DDC

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energy management systems, and for centralized or distributed monitoring, reporting, and control – and allows for DDC systems to be tied in now and in the future.

To improve the energy efficiency of buildings and capture the sizable opportunities that exist within them, commissioning principles are being applied to existing buildings more and more often. Fortunately, commissioning of existing buildings - also known as *retro-commissioning* - when appropriately applied goes beyond quick-fix solutions to systematically optimize building systems so that they operate efficiently and effectively, often eliminating the need for costly capital improvements. Not only does retro-commissioning identify problems that occurred at construction just as traditional commissioning does, but it also identifies and solves problems that have developed during the building's life.

The benefits of retro-commissioning are numerous. Many of those most important to building owners, operators and occupants are summarized below:

- Identifies system operating, control and maintenance problems
- Aids in long-term planning and major maintenance budgeting
- Helps ensure a healthy, comfortable, and productive working environment for occupants
- Reduces energy waste and ensures that energy using equipment operates efficiently
- Provides energy cost savings that often payback investment
- Reduces maintenance costs; reduces premature equipment failure
- Provides complete and accurate building documentation; expedites troubleshooting
- Provides appropriate training to operating staff to increase skill levels; increases staff effectiveness in serving customers or tenants
- Reduces risk and increases the asset value of the building

Retro-commissioning seeks to ensure the functionality of equipment and systems and also to optimize how they operate together in order to reduce energy waste and improve building operation and comfort. Thus, the goal of ensuring comfort and productivity of the building occupants accompanies the goal of cost savings. The process includes investigating and documenting the condition of the selected systems, identifying existing problems in buildings, optimizing building energy systems and formalizing operational procedures, as well as measuring and documenting the energy savings and comfort improvements.

Affected Areas

NO RESCO will provide one of two new DDC energy management system options in the following buildings:

- Bigelow Middle School
- Brown Middle School
- Oak Hill Middle School
- Education Center
- City Hall
- Police Headquarters
- Police Annex

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NORESCO will provide new DDC energy management systems in the following buildings:

- Oak Hill Middle School
- Education Center
- City Hall
- Police Headquarters

NORESCO will implement retro-commissioning in the following buildings:

- Bigelow Middle School
- Brown Middle School
- Oak Hill Middle School
- Education Center
- Police Headquarters

Detailed Description – New DDC Energy Management System

NORESCO will install new Direct Digital Control (DDC) Energy Management Systems (EMS), retro-commission existing controls, and install programmable thermostats for selected buildings. These improvements will deliver energy savings by implementing efficient control strategies and will provide for improved monitoring and control of building HVAC equipment. The following describes the scope of work for each building.

Bigelow Middle School

Existing System Description

The school's heating systems are a mix of steam and hot water equipment. The steam boiler plant consists of (2) dual-fuel steam boilers, which provide steam to (3) steam-to-hot water heat exchangers. These heat exchangers in turn provide heating hot water to (71) unit ventilators, cabinet and unit heaters, and finned-tube radiation. The three sets of circulating pumps, chiller, cooling tower, exhaust fans and a small split AC unit are all controlled manually. The HVAC terminal equipment is controlled by an aging, obsolete, and maintenance intensive pneumatic air system and non-programmable electric controls.

Recommended Improvements

NORESCO will install new hardware and software to provide DDC control of the HVAC systems identified in the scope of work, and will integrate the new energy management system into a single front-end interface, including graphics and web-based remote access and functionality. Implementation of new control sequences and strategies to allow for increased system control and energy efficient control schemes are included. Existing to remain control end devices such as valve and damper actuators will be retro-commissioned, and deficient equipment will be documented, prioritized, and addressed under the repair/replace equipment budget. The

result will be reduced energy consumption, improved space comfort conditions, and greater capability for facilities staff to monitor and control the school's HVAC systems.

Scope of Work

At Bigelow Middle School, NORESO will:

- Provide a comprehensive, web-based DDC energy management system, including all hardware/software points and control applications.
- Provide new DDC equipment and application software for the following (See attached Points List for details):

	Feature	Option	
		1	2
1	Control of (2) steam boilers, including enable/disable, alarm, and pressure sensors.	✓	✓
2	Control of (3) steam-to-hot water heat exchangers, including steam valves, and temperature sensors.	✓	✓
3	Control of (4) existing hot water pumps and (2) dual temperature pumps, including start/stop, status and alarm.	✓	✓
4	Control of (3) existing mixing valves and (3) differential pressure valves, including supply/return temperatures and pressures.	✓	✓
5	Control of domestic hot water system, including start/stop, status, tank temperature, and circulator enable/disable and status.	✓	✓
6	Control of Administration chiller, including enable/disable, status, diverter valves, and temperature.	✓	✓
7	Control of (71) unit ventilators, including start/stop, status, valve, mixed air and face/bypass dampers, and space temperature.		✓
8	Control of unit ventilators, including zoned start/stop, <u>and pneumatic control of valve</u> , mixed air and face/bypass dampers, and space temperature.	✓	
9	Control of AC unit, including enable/disable, status, cooling enable/disable, and space temperature.	✓	✓
10	Control of (21) exhaust fans.	✓	✓

- Provide relays, sensors, electric-to-pneumatic transducers, and other field interface devices as necessary to provide the required control and monitoring functions for each system. Perform point-to-point checkout, testing, and commissioning of the EMS input and output points and control sequences, as well as retro-commissioning of the existing to remain control end devices.
- Remove existing pneumatic controllers and devices made obsolete by the new EMS. Remove and/or neatly cut and cap all pneumatic lines that will no longer be in use.
- New work includes equipment, wiring, installation labor, application and graphical software and programming.

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Brown Middle School

Existing System Description

The school's heating systems are comprised of steam equipment. The steam boiler plant consists of (2) dual-fuel steam boilers, which provide steam for (10) heating and ventilation units, (56) unit ventilators, (34) classroom convectors, cabinet and unit heaters, and finned-tube radiation. There is a small package-AC rooftop unit with gas heat, and a small split-AC unit serving the Main Office. There are also (11) exhaust fans, and a few window AC units serving the Library. The HVAC terminal equipment is controlled by an aging, obsolete, and maintenance intensive pneumatic air system and non-programmable electric controls.

Recommended Improvements

NORESCO will install new hardware and software to provide DDC control of the HVAC systems identified in the scope of work, and will integrate the new energy management system into a single front-end interface, including graphics and web-based remote access and functionality. Implementation of new control sequences and strategies to allow for increased system control and energy efficient control schemes are included. Existing to remain control end devices such as valve and damper actuators will be retro-commissioned, and deficient equipment will be documented, prioritized, and addressed under the repair/replace equipment budget. The result will be reduced energy consumption, improved space comfort conditions, and greater capability for facilities staff to monitor and control the school's HVAC systems.

Scope of Work

At Brown Middle School, NORESO will:

- Provide a comprehensive, web-based DDC energy management system, including all hardware/software points and control applications.
- Provide new DDC equipment and application software for the following (See attached Points List for details):

	Feature	Option	
		1	2
1	Control of (2) steam boilers, including enable/disable, alarm, and pressure sensors.	✓	✓
2	Control of domestic hot water system, including start/stop, status, tank temperature, and circulator enable/disable and status.	✓	✓
3	Control of Administration split-AC unit, including enable/disable, status, and temperature.	✓	✓
4	Control of package-AC rooftop unit, including enable/disable, status, cooling and heating enable/disable, and space temperature.	✓	✓
5	Control of (10) heating and ventilation units, including start/stop, status, valve, mixed air and face/bypass dampers, and space temperature.		✓
6	Control of (10) heating and ventilation units, including start/stop, status, <u>and pneumatic control of valve</u> , mixed air and face/bypass dampers, and space	✓	

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	Feature	Option	
		1	2
	temperature.		
7	Control of (56) unit ventilators, including start/stop, status, valve, mixed air and face/bypass dampers, and space temperature.		✓
8	Control of (56) unit ventilators, including start/stop, status, <u>and pneumatic control of valve</u> , mixed air and face/bypass dampers, and space temperature.	✓	
9	Control of (34) classroom convectors, including valve control and space temperature.	✓	✓
10	Control of (11) exhaust fans.	✓	✓

- Provide relays, sensors, electric-to-pneumatic transducers, and other field interface devices as necessary to provide the required control and monitoring functions for each system. Perform point-to-point checkout, testing, and commissioning of the EMS input and output points and control sequences, as well as retro-commissioning of the existing to remain control end devices.
- Remove existing pneumatic controllers and devices made obsolete by the new EMS. Remove and/or neatly cut and cap all pneumatic lines that will no longer be in use.
- New work includes equipment, wiring, installation labor, application and graphical software and programming.

Oak Hill Middle School

Existing System Description

The school's heating systems is comprised of hot water equipment. The boiler plant consists of (2) dual-fuel hot water boilers, which provide heating hot water to (57) unit ventilators, (10) air handler units, cabinet and unit heaters, and finned-tube radiation. The three hot water circulating pumps and boilers are controlled by proprietary boiler and pump controllers.

Cooling for the building is provided by split-AC coils in half of the air handler units noted above, and makeup air for the corridor unit ventilators is supplied by (2) fan units. There are also (6) dedicated exhaust fans serving the building. With the exception of (8) of the unit ventilators that have the manufacturer's standalone DDC controls, the HVAC terminal equipment is controlled by a legacy, obsolete, and maintenance intensive standalone electric control system with time clock scheduling.

Recommended Improvements

NORESCO will install new hardware and software to provide DDC control of the HVAC systems identified in the scope of work, and will integrate the new energy management system into a single front-end interface, including graphics and web-based remote access and functionality. Implementation of new control sequences and strategies to allow for increased system control and energy efficient control schemes are included. Existing to remain control end

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devices such as valve and damper actuators will be retro-commissioned, and deficient equipment will be documented, prioritized, and addressed under the repair/replace equipment budget. The result will be reduced energy consumption, improved space comfort conditions, and greater capability for facilities staff to monitor and control the school's HVAC systems.

Scope of Work

At Oak Hill Middle School, NORESO will:

- Provide a comprehensive, web-based DDC energy management system, including all hardware/software points and control applications.
- Provide new DDC equipment and application software for the following (See attached Points List for details):
 - Control of (2) hot water boilers, including enable/disable, alarm, and supply and return temperatures.
 - Control of (3) existing hot water pumps, including start/stop, status and alarm.
 - Control of domestic hot water system, including start/stop, status, tank temperature, and circulator enable/disable and status.
 - Control of (10) air handler units, including start/stop, status, heating valve, cooling enable/disable, mixed air and face/bypass dampers, and space temperature.
 - Control of (57) unit ventilators, including start/stop, status, mixed air and face/bypass dampers, and space temperature.
 - Control of (6) exhaust fans.
- Provide relays, sensors, electric-to-pneumatic transducers, and other field interface devices as necessary to provide the required control and monitoring functions for each system. Perform point-to-point checkout, testing, and commissioning of the EMS input and output points and control sequences, as well as retro-commissioning of the existing to remain control end devices.
- Remove existing pneumatic controllers and devices made obsolete by the new EMS. Remove and/or neatly cut and cap all pneumatic lines that will no longer be in use.
- New work includes equipment, wiring, installation labor, application and graphical software and programming.

Education Center/Annex

Existing System Description

The building's heating systems are primarily comprised of steam equipment. The steam boiler plant consists of (2) dual-fuel steam boilers, which provide steam for (3) ceiling-hung unit ventilators, (6) floor unit ventilators in the Annex, convectors, cabinet and unit heaters, and cast iron radiation. There are (2) split-AC air handlers with electric heat serving the CRC, and (2)

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fans for general exhaust. There are (10) electric resistance baseboard heaters in the Annex with local controls. The HVAC terminal equipment is controlled by an aging, obsolete, and maintenance intensive pneumatic air system and non-programmable electric controls.

Recommended Improvements

NORESCO will install new hardware and software to provide DDC control of the HVAC systems identified in the scope of work, and will integrate the new energy management system into a single front-end interface, including graphics and web-based remote access and functionality. Implementation of new control sequences and strategies to allow for increased system control and energy efficient control schemes are included. Existing to remain control end devices such as valve and damper actuators will be retro-commissioned, and deficient equipment will be documented, prioritized, and addressed under the repair/replace equipment budget. The result will be reduced energy consumption, improved space comfort conditions, and greater capability for facilities staff to monitor and control the school's HVAC systems.

Scope of Work

At the Education Center/Annex, NORESCO will:

- Provide a comprehensive, web-based DDC energy management system, including all hardware/software points and control applications.
- Provide new DDC equipment and application software for the following (See attached Points List for details):
 - Control of (2) steam boilers, including enable/disable, alarm, and pressure sensors.
 - Control of (2) CRC split-AC units, including start/stop, status, mixed air damper, cooling and heating enable/disable, and space temperature.
 - Control of (6) unit ventilators, including start/stop, status, mixed air and face/bypass dampers, and space temperature.
 - Control of (3) unit ventilators, including start/stop, status, valve, mixed air dampers, and space temperature.
 - Control of (10) electric baseboard heaters, including enable/disable.
 - Control of (2) exhaust fans.
- Provide relays, sensors, electric-to-pneumatic transducers, and other field interface devices as necessary to provide the required control and monitoring functions for each system. Perform point-to-point checkout, testing, and commissioning of the EMS input and output points and control sequences, as well as retro-commissioning of the existing to remain control end devices.
- Remove existing pneumatic controllers and devices made obsolete by the new EMS. Remove and/or neatly cut and cap all pneumatic lines that will no longer be in use.
- New work includes equipment, wiring, installation labor, application and graphical software and programming.

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City Hall

Existing System Description

The building's heating systems is comprised of steam equipment. The steam boiler plant consists of (2) dual-fuel steam boilers, which provide steam for convectors, cabinet and unit heaters, and cast iron radiation. The boilers are controlled by a proprietary Heat Timer controller. Cooling is primarily supplied by window AC units. The HVAC terminal equipment is controlled by an aging, obsolete, and maintenance intensive pneumatic air system and non-programmable electric controls.

Recommended Improvements

NORESCO will install new hardware and software to provide DDC control of the HVAC systems identified in the scope of work, and will integrate the new energy management system into a single front-end interface, including graphics and web-based remote access and functionality. Implementation of new control sequences and strategies to allow for increased system control and energy efficient control schemes are included. Existing to remain controls will be retro-commissioned, and deficient equipment will be documented, prioritized, and addressed under the repair/replace equipment budget. The result will be reduced energy consumption, improved space comfort conditions, and greater capability for facilities staff to monitor and control the school's HVAC systems.

Scope of Work

At the Newton City Hall, NORESKO will:

- Provide a comprehensive, web-based DDC energy management system, including all hardware/software points and control applications.
- Provide new DDC equipment and application software for the following (See attached Points List for details):
 - Control of (2) steam boilers, including enable/disable, alarm, pressure sensor, and space temperatures.
- Provide relays, sensors, electric-to-pneumatic transducers, and other field interface devices as necessary to provide the required control and monitoring functions for each system. Perform point-to-point checkout, testing, and commissioning of the EMS input and output points and control sequences, as well as retro-commissioning of the existing to remain control end devices.
- New work includes equipment, wiring, installation labor, application and graphical software and programming.

Police Headquarters

Existing System Description

The building's heating systems are comprised of hot water equipment. The boiler plant consists of (2) dual-fuel hot water boilers, which provide heating hot water to (38) dual temperature fan coil units, (1) rooftop makeup air unit, (1) reheat coil, cabinet and unit heaters, and some finned-tube radiation. The two hot water circulating pumps and boilers are controlled by a proprietary boiler and pump controller.

Cooling for the building is provided by an air cooled chiller that serves the dual temperature fan coils as well as the rooftop makeup air unit. The dispatch area has a dedicated cooling system that does not fall under the scope of the measure. With the exception of the boiler controls, the HVAC terminal equipment is controlled by an aging, obsolete, and maintenance intensive electro-pneumatic control system and non-programmable electric controls.

Recommended Improvements

NORESCO will install new hardware and software to provide DDC control of the HVAC systems identified in the scope of work, and will integrate the new energy management system into a single front-end interface, including graphics and web-based remote access and functionality. Implementation of new control sequences and strategies to allow for increased system control and energy efficient control schemes are included. Existing to remain control end devices such as valve and damper actuators will be retro-commissioned, and deficient equipment will be documented, prioritized, and addressed under the repair/replace equipment budget. The result will be reduced energy consumption, improved space comfort conditions, and greater capability for facilities staff to monitor and control the school's HVAC systems.

Scope of Work

At the Police Headquarters, NORESO will:

- Provide a comprehensive, web-based DDC energy management system, including all hardware/software points and control applications.
- Provide new DDC equipment and application software for the following (See attached Points List for details):
 - Control of (2) hot water boilers, including enable/disable, alarm, and supply and return temperatures.
 - Control of (2) existing hot water pumps, including start/stop and status.
 - Control of air cooled chiller, including enable/disable, status, and supply and return temperatures.
 - Control of (2) existing chilled water pumps, including start/stop and status.
 - Control of (1) rooftop makeup air unit, including start/stop, status, outside air damper, cooling and heating valves, and IGV or VFD control and static pressure.
 - Control of (2) variable air volume boxes, including damper control, CFM, and discharge air temperature.

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- Control of (1) hot water reheat valve, including discharge air and space temperature.
- Retro-commissioning of (38) existing fan coil units, including start/stop, heating and cooling valves, and space temperature.
- Provide relays, sensors, electric-to-pneumatic transducers, and other field interface devices as necessary to provide the required control and monitoring functions for each system. Perform point-to-point checkout, testing, and commissioning of the EMS input and output points and control sequences, as well as retro-commissioning of the existing to remain control end devices.
- Remove existing pneumatic controllers and devices made obsolete by the new EMS. Remove and/or neatly cut and cap all pneumatic lines that will no longer be in use.
- New work includes equipment, wiring, installation labor, application and graphical software and programming.

Police Annex

Existing System Description

The building's heating systems are comprised of a mix of electric and hot water equipment. The boiler plant consists of (1) gas-fired hot water boiler, which provides heating hot water to (1) split-AC unit, (2) finned-tube radiation zones, and unit heaters. The single hot water circulating pump and boiler are controlled by a standard aquastat configuration, while the air handler and radiation zones have dedicated zone valves and non-programmable electric thermostats. Another split-AC unit includes electric resistance heating, and there are (2) electric baseboard zones with local electric controls.

Recommended Improvements – Option 1: Programmable Thermostats

Under Option 1, NORESO will install new programmable thermostats for the selected systems. Installation of a reliable programmable thermostat with 5-1-1 day scheduling will improve unitary system operation and control while reducing energy consumption and improving comfort conditions.

Recommended Improvements – Option 2: New EMS with DDC Controls

Under Option 2, NORESO will install new hardware and software to provide DDC control of the HVAC systems identified in the scope of work, and will integrate the new energy management system into a single front-end interface, including graphics and web-based remote access and functionality. Implementation of new control sequences and strategies to allow for increased system control and energy efficient control schemes are included. Existing to remain control end devices such as valve and damper actuators will be retro-commissioned, and deficient equipment will be documented, prioritized, and addressed under the repair/replace equipment budget. The result will be reduced energy consumption, improved space comfort

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conditions, and greater capability for facilities staff to monitor and control the school's HVAC systems.

Scope of Work

At the Police Annex, NORESO will:

- Provide a comprehensive, web-based DDC energy management system, including all hardware/software points and control applications.
- Provide new DDC equipment and application software for the following (See attached Points List for details):
 - Control of (1) hot water boiler, including enable/disable, status, and supply and return temperatures.
 - Control of (1) existing hot water pump, including start/stop and status.
 - Control of (2) hot water zone radiation valves, including open/close.
 - Control of (1) split AC unit with hydronic coil, including start/stop, status, outside air damper, cooling enable, heating valve, and space temperature.
 - Control of (1) split AC unit with electric heat, including start/stop, status, outside air damper, cooling and heating enable, and space temperature.
- Provide relays, sensors, electric-to-pneumatic transducers, and other field interface devices as necessary to provide the required control and monitoring functions for each system. Perform point-to-point checkout, testing, and commissioning of the EMS input and output points and control sequences, as well as retro-commissioning of the existing to remain control end devices.
- New work includes equipment, wiring, installation labor, application and graphical software and programming.

Detailed Description – Programmable Thermostats

Police Garage

Existing System Description

The building's heating system consists of (5) gas-fired unit heaters. These unit heaters are controlled via non-programmable electric thermostats. For a space that is typically used for forty hours per work week, the number of unoccupied hours over the course of a year is more than three times the occupied hours. With a non-programmable thermostat, the savings from maintaining a lower unoccupied space temperature are lost.

Recommended Improvements

NORESCO will install new programmable thermostats for the selected systems. Installation of a reliable programmable thermostat with 5-1-1 day scheduling will improve unitary system operation and control while reducing energy consumption and improving comfort conditions.

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Implementation of scheduling and night setback strategies to allow for increased system control and energy efficiency is included. The result will be reduced energy consumption and improved space comfort conditions.

Scope of Work

At the Police Garage, NORESO will:

- Remove existing thermostats made obsolete by the new equipment. Remove and/or neatly cut and cap all control or power wiring that will no longer be in use.
- Five programmable thermostats.
- New work includes equipment, wiring, installation labor, application and programming.

Detailed Description – Retro-Commissioning Repairs

With this measure, NORESO has included an allowance to repair or replace existing failed control end devices, such as relays, transducers, and actuators in selected buildings. NORESO will use these allocated funds to pay for malfunctioning components identified in the retro-commissioning deficiency report. The allowance for repairs is limited and NORESO will coordinate with City of Newton facilities personnel to prioritize the repair/replace components on the deficiency list.

This retro-commissioning allowance will provide for the repair or replacement of a limited quantity of failed control components. The actual cost of repairing all items in the deficiency report may be more or less than this allowance. NORESO and the City of Newton can negotiate any additional costs and scopes to complete the work identified during the retro-commissioning which are not addressed due to the depletion of the allocated funds.

NORESOS will implement retro-commissioning in the following buildings:

- Bigelow Middle School
- Brown Middle School
- Oak Hill Middle School
- Education Center
- Police Headquarters

Interface with Existing Systems and Operations

Impact on Facility Operations and Performance

The facility will benefit from reduced energy consumption and improved occupant comfort.

Maintenance

The City will continue to be responsible for maintenance of the energy management systems. NORESO expects maintenance of the installed equipment to be comparable to current maintenance requirements.

Customer Training

NORESCO will provide O&M manuals for the installed equipment.

Equipment Information

Manufacturer and Type

NORESCO recommends that the new Energy Management System equipment be manufactured by one of the following corporations, or equal, meeting the specifications as listed below.

- **Delta Controls, Inc.**, 17850 - 56th Avenue, Surrey, British Columbia, Canada V3S 1C7

Material Specifications

Energy Management System shall be a complete working system with all controllers being the product of a single manufacturer. The system shall be a web-enabled system with one permanent operator workstation in each school building. Communications shall be configured via the school and city's existing IT infrastructure with a separate controller bus consisting of an Ethernet LAN as required. System shall provide multiple levels of security and shall be configured to perform all required temperature control and energy management functions.

NORESCO recommends installing programmable thermostats as manufactured by Honeywell, or approved equal.

- **Honeywell International Inc.** 101 Columbia Road, Morristown, NJ 07962 Ph: (973) 455-2000 Fax: (973) 455-4807

***EMS Improvements
I. Points List***

***EMS Improvements
II. Energy Savings Calculations***

NORESCO
Bigelow Middle School - Savings Summary

EMS Improvements

Unit #	Quantity	kWk Supply And Return Fans			kWh Cooling			Heating			kWh Unit Total		
		kWh Existing Unit	kWh Proposed Unit	Annual kWh Saved	kWh Existing Unit	kWh Proposed Unit	Annual kWh Saved	MMBTU Existing Unit	MMBTU Proposed Unit	Annual MMBTU Saved	kWh Existing Unit	kWh Proposed Unit	Annual kWh Saved
UV-1	3	2,804	2,327	477	4,488	3,680	807	252	222	30	7,291	6,007	1,284
UV-2	2	1,811	1,541	270	4,988	4,460	527	733	618	115	6,798	6,001	797
UV-3	1	935	776	159	0	0	0	104	89	15	935	776	159
UV-4	1	351	291	60	0	0	0	92	78	14	351	291	60
UV-5	1	469	389	80	0	0	0	104	89	15	469	389	80
UV-6	1	469	389	80	0	0	0	115	100	15	469	389	80
UV-7	1	926	769	158	0	0	0	69	60	8	926	769	158
UV-8	1	351	291	60	0	0	0	77	66	10	351	291	60
UV-9	1	469	389	80	0	0	0	115	100	15	469	389	80
HC-1, 6, 8, 9	20	7,016	7,015	1	0	0	0	2,916	2,463	452	7,016	7,015	1
HC-2	2	702	582	119	0	0	0	254	217	36	702	582	119
HC-3	1	351	291	60	0	0	0	186	154	32	351	291	60
HC-4	1	926	769	158	0	0	0	194	164	30	926	769	158
HC-5, 7, 10	6	2,105	1,747	358	9,648	7,953	1,695	399	339	60	11,753	9,700	2,053
HC-11	1	351	291	60	0	0	0	122	103	19	351	291	60
A	2	702	582	119	0	0	0	374	305	69	702	582	119
B	2	702	582	119	0	0	0	374	305	69	702	582	119
C	1	351	291	60	0	0	0	149	122	27	351	291	60
D	1	351	291	60	0	0	0	155	128	27	351	291	60
E	2	702	582	119	0	0	0	248	205	43	702	582	119
F	1	351	291	60	0	0	0	152	122	30	351	291	60
G	2	702	582	119	0	0	0	374	305	69	702	582	119
H	2	702	582	119	0	0	0	1,166	965	202	702	582	119
I	2	702	582	119	0	0	0	422	349	73	702	582	119
J	1	351	291	60	0	0	0	186	154	32	351	291	60
K	2	702	582	119	0	0	0	620	513	107	702	582	119
L	1	351	291	60	0	0	0	102	82	20	351	291	60
M	2	702	582	119	0	0	0	508	408	100	702	582	119
FCUs	1	3,227	2,678	549	0	0	0	323	304	20	3,227	2,678	549
Total	65	11,450	10,695	756	9,648	7,953	1,695	4,070	3,440	630	21,098	18,648	2,450

NORESCO

Energy Savings Analysis - EMS Improvements

Building: Bigelow Middle School		Existing	Proposed	
Unit #: UV-1	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Media Center	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	D	D	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	10.0	10.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	107	63	54	13	161	Fans	0.2 kW
8 AM - 4 PM	Occupied	558	1,160	1,152	44	1,711	Cooling	5.1 kW
4 PM - 12 AM	Occupied	269	315	290	28	559	Total	5.3 kW
All	Unoccupied	0	0	0	0	0		
Totals		935	1,538	1,496	84	2,430		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	133	82	70	17	203	Fans	0.2 kW
8 AM - 4 PM	Occupied	455	958	950	37	1,405	Cooling	5.1 kW
4 PM - 12 AM	Occupied	187	225	207	20	394	Total	5.3 kW
All	Unoccupied	0	0	0	0	0		
Totals		776	1,266	1,227	74	2,002		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	-26	-19	-16	-4	-42	Fans	0.0 kW
8 AM - 4 PM	Occupied	103	202	202	7	305	Cooling	0.0 kW
4 PM - 12 AM	Occupied	82	90	83	7	165	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		159	272	269	10	428		

NORESCO

Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Bigelow Middle School
HVAC System: UV-1
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.36	0
90 / 94	0	0%	93%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.26	0
85 / 89	0	0%	82%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.16	0
80 / 84	0	0%	71%	100%	0.2	0.0	0.2	0	0	0	1.5	1	1.06	1
75 / 79	1	0%	60%	100%	0.2	0.0	0.2	0	0	0	1.2	6	0.96	6
70 / 74	7	0%	49%	100%	0.2	0.0	0.2	2	0	0	0.9	19	0.86	17
65 / 69	16	0%	38%	100%	0.2	0.0	0.2	4	0	0	0.6	24	0.83	19
60 / 64	24	0%	27%	100%	0.2	0.0	0.2	6	0	0	0.3	13	0.83	11
55 / 59	34	0%	16%	100%	0.2	0.0	0.2	9	0	0	0.0	0	0.83	0
50 / 54	39	16%	4%	100%	0.2	0.0	0.2	10	11	0	0.0	0	0.83	0
45 / 49	40	23%	0%	100%	0.2	0.0	0.2	10	16	0	0.0	0	0.83	0
40 / 44	42	31%	0%	100%	0.2	0.0	0.2	10	20	1	0.0	0	0.83	0
35 / 39	49	38%	0%	100%	0.2	0.0	0.2	12	25	1	0.0	0	0.83	0
30 / 34	55	46%	0%	100%	0.2	0.0	0.2	14	29	2	0.0	0	0.83	0
25 / 29	39	53%	0%	100%	0.2	0.0	0.2	10	33	2	0.0	0	0.83	0
20 / 24	29	61%	0%	100%	0.2	0.0	0.2	7	38	2	0.0	0	0.83	0
15 / 19	19	68%	0%	100%	0.2	0.0	0.2	5	42	1	0.0	0	0.83	0
10 / 14	15	76%	0%	100%	0.2	0.0	0.2	4	46	1	0.0	0	0.83	0
5 / 9	11	83%	0%	100%	0.2	0.0	0.2	3	51	1	0.0	0	0.83	0
0 / 4	6	90%	0%	100%	0.2	0.0	0.2	2	55	1	0.0	0	0.83	0
-5 / -1	2	98%	0%	100%	0.2	0.0	0.2	1	59	0	0.0	0	0.83	0
-10 / -6	1	100%	0%	100%	0.2	0.0	0.2	0	61	0	0.0	0	0.83	0
-15 / -11	1	100%	0%	100%	0.2	0.0	0.2	0	63	0	0.0	0	0.83	0
-20 / -16	0	100%	0%	100%	0.2	0.0	0.2	0	64	0	0.0	0	0.83	0
433					107				13		63			

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Estimated Annual Energy Usage - EMS Improvements

Building: Bigelow Middle School		Proposed	
Unit #: UV-1	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Media Center	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: Unit Vent	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	D	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	10.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	0.2 kW
12 M - 8 AM	Occupied	133	82	70	17	203	Cooling	5.1 kW
8 AM - 4 PM	Occupied	455	958	950	37	1,405	Total	5.3 kW
4 PM - 12 AM	Occupied	187	225	207	20	394		
All	Unoccupied	0	0	0	0	0		
Totals		776	1,266	1,227	74	2,002		

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Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Bigelow Middle School
HVAC System: UV-1
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.36	0
90 / 94	0	0%	93%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.26	0
85 / 89	0	0%	82%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.16	0
80 / 84	0	0%	71%	100%	0.2	0.0	0.2	0	0	0	1.5	1	1.06	1
75 / 79	2	0%	60%	100%	0.2	0.0	0.2	0	0	0	1.2	7	0.96	7
70 / 74	9	0%	49%	100%	0.2	0.0	0.2	2	0	0	0.9	24	0.86	21
65 / 69	19	0%	38%	100%	0.2	0.0	0.2	5	0	0	0.6	30	0.83	25
60 / 64	30	0%	27%	100%	0.2	0.0	0.2	7	0	0	0.3	18	0.83	15
55 / 59	43	0%	16%	100%	0.2	0.0	0.2	11	0	0	0.0	2	0.83	1
50 / 54	48	14%	4%	100%	0.2	0.0	0.2	12	11	0	0.0	0	0.83	0
45 / 49	50	22%	0%	100%	0.2	0.0	0.2	12	16	0	0.0	0	0.83	0
40 / 44	52	30%	0%	100%	0.2	0.0	0.2	13	21	1	0.0	0	0.83	0
35 / 39	61	38%	0%	100%	0.2	0.0	0.2	15	26	2	0.0	0	0.83	0
30 / 34	69	46%	0%	100%	0.2	0.0	0.2	17	31	3	0.0	0	0.83	0
25 / 29	48	54%	0%	100%	0.2	0.0	0.2	12	36	3	0.0	0	0.83	0
20 / 24	36	62%	0%	100%	0.2	0.0	0.2	9	40	2	0.0	0	0.83	0
15 / 19	24	70%	0%	100%	0.2	0.0	0.2	6	45	2	0.0	0	0.83	0
10 / 14	18	78%	0%	100%	0.2	0.0	0.2	5	50	1	0.0	0	0.83	0
5 / 9	14	86%	0%	100%	0.2	0.0	0.2	4	55	1	0.0	0	0.83	0
0 / 4	8	94%	0%	100%	0.2	0.0	0.2	2	60	1	0.0	0	0.83	0
-5 / -1	3	100%	0%	100%	0.2	0.0	0.2	1	64	0	0.0	0	0.83	0
-10 / -6	2	100%	0%	100%	0.2	0.0	0.2	0	65	0	0.0	0	0.83	0
-15 / -11	1	100%	0%	100%	0.2	0.0	0.2	0	67	0	0.0	0	0.83	0
-20 / -16	0	100%	0%	100%	0.2	0.0	0.2	0	68	0	0.0	0	0.83	0
	537							133		17		82		70

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Energy Savings Analysis - EMS Improvements

Building: Bigelow Middle School		Existing	Proposed	
Unit #: UV-2	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Computer Labs	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	D	D	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	10.0	10.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	302	254	222	142	524	Fans	0.1 kW
8 AM - 4 PM	Occupied	301	1,531	1,585	101	1,887	Cooling	8.2 kW
4 PM - 12 AM	Occupied	302	714	686	124	988	Total	8.3 kW
All	Unoccupied	0	0	0	0	0		
Totals		905	2,499	2,494	367	3,399		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	302	273	238	142	539	Fans	0.1 kW
8 AM - 4 PM	Occupied	301	1,550	1,602	98	1,903	Cooling	8.2 kW
4 PM - 12 AM	Occupied	167	408	391	68	558	Total	8.3 kW
All	Unoccupied	0	0	0	0	0		
Totals		771	2,231	2,230	309	3,001		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	0	-19	-16	0	-16	Fans	0.0 kW
8 AM - 4 PM	Occupied	0	-20	-17	2	-17	Cooling	0.0 kW
4 PM - 12 AM	Occupied	135	306	296	56	431	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		135	268	264	58	399		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Bigelow Middle School
HVAC System: UV-2
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.36	0
90 / 94	0	0%	93%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.26	0
85 / 89	0	0%	82%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.16	0
80 / 84	1	0%	71%	100%	0.1	0.0	0.1	0	0	0	2.2	7	1.06	7
75 / 79	7	0%	60%	100%	0.1	0.0	0.1	1	0	0	1.6	43	0.96	41
70 / 74	40	0%	49%	100%	0.1	0.0	0.1	5	0	0	1.0	118	0.86	102
65 / 69	88	0%	38%	100%	0.1	0.0	0.1	11	0	0	0.4	87	0.83	72
60 / 64	136	0%	27%	100%	0.1	0.0	0.1	17	2	0	0.0	0	0.83	0
55 / 59	193	0%	16%	100%	0.1	0.0	0.1	24	9	0	0.0	0	0.83	0
50 / 54	218	16%	4%	100%	0.1	0.0	0.1	27	26	2	0.0	0	0.83	0
45 / 49	225	23%	0%	100%	0.1	0.0	0.1	28	34	5	0.0	0	0.83	0
40 / 44	236	31%	0%	100%	0.1	0.0	0.1	29	42	9	0.0	0	0.83	0
35 / 39	274	38%	0%	100%	0.1	0.0	0.1	34	50	16	0.0	0	0.83	0
30 / 34	310	46%	0%	100%	0.1	0.0	0.1	39	58	25	0.0	0	0.83	0
25 / 29	219	53%	0%	100%	0.1	0.0	0.1	27	66	21	0.0	0	0.83	0
20 / 24	161	61%	0%	100%	0.1	0.0	0.1	20	74	18	0.0	0	0.83	0
15 / 19	108	68%	0%	100%	0.1	0.0	0.1	13	82	14	0.0	0	0.83	0
10 / 14	83	76%	0%	100%	0.1	0.0	0.1	10	90	11	0.0	0	0.83	0
5 / 9	64	83%	0%	100%	0.1	0.0	0.1	8	98	10	0.0	0	0.83	0
0 / 4	36	90%	0%	100%	0.1	0.0	0.1	4	106	6	0.0	0	0.83	0
-5 / -1	13	98%	0%	100%	0.1	0.0	0.1	2	114	2	0.0	0	0.83	0
-10 / -6	7	100%	0%	100%	0.1	0.0	0.1	1	119	1	0.0	0	0.83	0
-15 / -11	3	100%	0%	100%	0.1	0.0	0.1	0	123	1	0.0	0	0.83	0
-20 / -16	1	100%	0%	100%	0.1	0.0	0.1	0	127	0	0.0	0	0.83	0
	2,423							302		142		254		222

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Estimated Annual Energy Usage - EMS Improvements

Building: Bigelow Middle School		Proposed	
Unit #: UV-2	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Computer Labs	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: Unit Vent	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	D	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	10.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	0.1 kW
12 M - 8 AM	Occupied	302	273	238	142	539	Cooling	8.2 kW
8 AM - 4 PM	Occupied	301	1,550	1,602	98	1,903	Total	8.3 kW
4 PM - 12 AM	Occupied	167	408	391	68	558		
All	Unoccupied	0	0	0	0	0		
Totals		771	2,231	2,230	309	3,001		

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Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Bigelow Middle School
HVAC System: UV-2
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use				
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton- Hours	kW Per Ton	Total Cooling kWh	
															System Hours
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.36	0	
90 / 94	0	0%	93%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.26	0	
85 / 89	0	0%	82%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.16	0	
80 / 84	1	0%	71%	100%	0.1	0.0	0.1	0	0	0	2.2	7	1.06	7	
75 / 79	7	0%	60%	100%	0.1	0.0	0.1	1	0	0	1.6	43	0.96	41	
70 / 74	40	0%	49%	100%	0.1	0.0	0.1	5	0	0	1.0	122	0.86	106	
65 / 69	88	0%	38%	100%	0.1	0.0	0.1	11	0	0	0.5	101	0.83	84	
60 / 64	136	0%	27%	100%	0.1	0.0	0.1	17	1	0	0.0	0	0.83	0	
55 / 59	193	0%	16%	100%	0.1	0.0	0.1	24	8	0	0.0	0	0.83	0	
50 / 54	218	14%	4%	100%	0.1	0.0	0.1	27	24	2	0.0	0	0.83	0	
45 / 49	225	22%	0%	100%	0.1	0.0	0.1	28	32	4	0.0	0	0.83	0	
40 / 44	236	30%	0%	100%	0.1	0.0	0.1	29	41	9	0.0	0	0.83	0	
35 / 39	274	38%	0%	100%	0.1	0.0	0.1	34	49	16	0.0	0	0.83	0	
30 / 34	310	46%	0%	100%	0.1	0.0	0.1	39	58	25	0.0	0	0.83	0	
25 / 29	219	54%	0%	100%	0.1	0.0	0.1	27	66	21	0.0	0	0.83	0	
20 / 24	161	62%	0%	100%	0.1	0.0	0.1	20	75	18	0.0	0	0.83	0	
15 / 19	108	70%	0%	100%	0.1	0.0	0.1	13	84	14	0.0	0	0.83	0	
10 / 14	83	78%	0%	100%	0.1	0.0	0.1	10	92	12	0.0	0	0.83	0	
5 / 9	64	86%	0%	100%	0.1	0.0	0.1	8	101	10	0.0	0	0.83	0	
0 / 4	36	94%	0%	100%	0.1	0.0	0.1	4	110	6	0.0	0	0.83	0	
-5 / -1	13	100%	0%	100%	0.1	0.0	0.1	2	117	2	0.0	0	0.83	0	
-10 / -6	7	100%	0%	100%	0.1	0.0	0.1	1	122	1	0.0	0	0.83	0	
-15 / -11	3	100%	0%	100%	0.1	0.0	0.1	0	126	1	0.0	0	0.83	0	
-20 / -16	1	100%	0%	100%	0.1	0.0	0.1	0	130	0	0.0	0	0.83	0	
	2,423								302		142		273		238

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Energy Savings Analysis - EMS Improvements

Building: Bigelow Middle School		Existing	Proposed	
Unit #: UV-3	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	10.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	107	0	0	15	107	Fans	0.2 kW
8 AM - 4 PM	Occupied	558	0	0	56	558	Cooling	0.0 kW
4 PM - 12 AM	Occupied	269	0	0	33	269	Total	0.2 kW
All	Unoccupied	0	0	0	0	0		
Totals		935	0	0	104	935		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	133	0	0	19	133	Fans	0.2 kW
8 AM - 4 PM	Occupied	455	0	0	46	455	Cooling	0.0 kW
4 PM - 12 AM	Occupied	187	0	0	24	187	Total	0.2 kW
All	Unoccupied	0	0	0	0	0		
Totals		776	0	0	89	776		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	-26	0	0	-4	-26	Fans	0.0 kW
8 AM - 4 PM	Occupied	103	0	0	10	103	Cooling	0.0 kW
4 PM - 12 AM	Occupied	82	0	0	9	82	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		159	0	0	15	159		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Bigelow Middle School
HVAC System: UV-3
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	0	0%	0%	100%	0.2	0.0	0.2	0	0	0	0.0	0	0.00	0
75 / 79	1	0%	0%	100%	0.2	0.0	0.2	0	0	0	0.0	0	0.00	0
70 / 74	7	0%	0%	100%	0.2	0.0	0.2	2	0	0	0.0	0	0.00	0
65 / 69	16	0%	0%	100%	0.2	0.0	0.2	4	8	0	0.0	0	0.00	0
60 / 64	24	0%	0%	100%	0.2	0.0	0.2	6	9	0	0.0	0	0.00	0
55 / 59	34	0%	0%	100%	0.2	0.0	0.2	9	10	0	0.0	0	0.00	0
50 / 54	39	16%	0%	100%	0.2	0.0	0.2	10	17	0	0.0	0	0.00	0
45 / 49	40	23%	0%	100%	0.2	0.0	0.2	10	21	1	0.0	0	0.00	0
40 / 44	42	31%	0%	100%	0.2	0.0	0.2	10	25	1	0.0	0	0.00	0
35 / 39	49	38%	0%	100%	0.2	0.0	0.2	12	29	2	0.0	0	0.00	0
30 / 34	55	46%	0%	100%	0.2	0.0	0.2	14	34	3	0.0	0	0.00	0
25 / 29	39	53%	0%	100%	0.2	0.0	0.2	10	38	2	0.0	0	0.00	0
20 / 24	29	61%	0%	100%	0.2	0.0	0.2	7	43	2	0.0	0	0.00	0
15 / 19	19	68%	0%	100%	0.2	0.0	0.2	5	48	1	0.0	0	0.00	0
10 / 14	15	76%	0%	100%	0.2	0.0	0.2	4	53	1	0.0	0	0.00	0
5 / 9	11	83%	0%	100%	0.2	0.0	0.2	3	58	1	0.0	0	0.00	0
0 / 4	6	90%	0%	100%	0.2	0.0	0.2	2	63	1	0.0	0	0.00	0
-5 / -1	2	98%	0%	100%	0.2	0.0	0.2	1	68	0	0.0	0	0.00	0
-10 / -6	1	100%	0%	100%	0.2	0.0	0.2	0	70	0	0.0	0	0.00	0
-15 / -11	1	100%	0%	100%	0.2	0.0	0.2	0	72	0	0.0	0	0.00	0
-20 / -16	0	100%	0%	100%	0.2	0.0	0.2	0	74	0	0.0	0	0.00	0
433					107				15		0			

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Estimated Annual Energy Usage - EMS Improvements

Building: Bigelow Middle School		Proposed	
Unit #: UV-3	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Classrooms	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: Unit Vent	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	10.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	0.2 kW
12 M - 8 AM	Occupied	133	0	0	19	133	Cooling	0.0 kW
8 AM - 4 PM	Occupied	455	0	0	46	455		
4 PM - 12 AM	Occupied	187	0	0	24	187		
All	Unoccupied	0	0	0	0	0		
Totals		776	0	0	89	776	Total	0.2 kW

NORESCO

Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Bigelow Middle School
HVAC System: UV-3
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton- Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	0	0%	0%	100%	0.2	0.0	0.2	0	0	0	0.0	0	0.00	0
75 / 79	2	0%	0%	100%	0.2	0.0	0.2	0	0	0	0.0	0	0.00	0
70 / 74	9	0%	0%	100%	0.2	0.0	0.2	2	0	0	0.0	0	0.00	0
65 / 69	19	0%	0%	100%	0.2	0.0	0.2	5	8	0	0.0	0	0.00	0
60 / 64	30	0%	0%	100%	0.2	0.0	0.2	7	8	0	0.0	0	0.00	0
55 / 59	43	0%	0%	100%	0.2	0.0	0.2	11	9	0	0.0	0	0.00	0
50 / 54	48	14%	0%	100%	0.2	0.0	0.2	12	16	0	0.0	0	0.00	0
45 / 49	50	22%	0%	100%	0.2	0.0	0.2	12	21	1	0.0	0	0.00	0
40 / 44	52	30%	0%	100%	0.2	0.0	0.2	13	25	1	0.0	0	0.00	0
35 / 39	61	38%	0%	100%	0.2	0.0	0.2	15	29	2	0.0	0	0.00	0
30 / 34	69	46%	0%	100%	0.2	0.0	0.2	17	35	3	0.0	0	0.00	0
25 / 29	48	54%	0%	100%	0.2	0.0	0.2	12	40	3	0.0	0	0.00	0
20 / 24	36	62%	0%	100%	0.2	0.0	0.2	9	46	2	0.0	0	0.00	0
15 / 19	24	70%	0%	100%	0.2	0.0	0.2	6	51	2	0.0	0	0.00	0
10 / 14	18	78%	0%	100%	0.2	0.0	0.2	5	57	2	0.0	0	0.00	0
5 / 9	14	86%	0%	100%	0.2	0.0	0.2	4	62	1	0.0	0	0.00	0
0 / 4	8	94%	0%	100%	0.2	0.0	0.2	2	68	1	0.0	0	0.00	0
-5 / -1	3	100%	0%	100%	0.2	0.0	0.2	1	72	0	0.0	0	0.00	0
-10 / -6	2	100%	0%	100%	0.2	0.0	0.2	0	74	0	0.0	0	0.00	0
-15 / -11	1	100%	0%	100%	0.2	0.0	0.2	0	75	0	0.0	0	0.00	0
-20 / -16	0	100%	0%	100%	0.2	0.0	0.2	0	77	0	0.0	0	0.00	0
	537							133		19		0		0

NORESCO

Energy Savings Analysis - EMS Improvements

Building: Bigelow Middle School		Existing	Proposed	
Unit #: UV-4	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	10.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	40	0	0	13	40	Fans	0.1 kW
8 AM - 4 PM	Occupied	210	0	0	50	210	Cooling	0.0 kW
4 PM - 12 AM	Occupied	101	0	0	29	101	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		351	0	0	92	351		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	50	0	0	17	50	Fans	0.1 kW
8 AM - 4 PM	Occupied	171	0	0	41	171	Cooling	0.0 kW
4 PM - 12 AM	Occupied	70	0	0	21	70	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		291	0	0	78	291		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	-10	0	0	-4	-10	Fans	0.0 kW
8 AM - 4 PM	Occupied	39	0	0	9	39	Cooling	0.0 kW
4 PM - 12 AM	Occupied	31	0	0	8	31	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		60	0	0	14	60		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Bigelow Middle School
HVAC System: UV-4
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	0.00	0
75 / 79	1	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	0.00	0
70 / 74	7	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	0.00	0
65 / 69	16	0%	0%	100%	0.1	0.0	0.1	1	8	0	0.0	0	0.00	0
60 / 64	24	0%	0%	100%	0.1	0.0	0.1	2	9	0	0.0	0	0.00	0
55 / 59	34	0%	0%	100%	0.1	0.0	0.1	3	10	0	0.0	0	0.00	0
50 / 54	39	16%	0%	100%	0.1	0.0	0.1	4	16	0	0.0	0	0.00	0
45 / 49	40	23%	0%	100%	0.1	0.0	0.1	4	19	0	0.0	0	0.00	0
40 / 44	42	31%	0%	100%	0.1	0.0	0.1	4	22	1	0.0	0	0.00	0
35 / 39	49	38%	0%	100%	0.1	0.0	0.1	5	25	1	0.0	0	0.00	0
30 / 34	55	46%	0%	100%	0.1	0.0	0.1	5	30	2	0.0	0	0.00	0
25 / 29	39	53%	0%	100%	0.1	0.0	0.1	4	34	2	0.0	0	0.00	0
20 / 24	29	61%	0%	100%	0.1	0.0	0.1	3	38	2	0.0	0	0.00	0
15 / 19	19	68%	0%	100%	0.1	0.0	0.1	2	42	1	0.0	0	0.00	0
10 / 14	15	76%	0%	100%	0.1	0.0	0.1	1	47	1	0.0	0	0.00	0
5 / 9	11	83%	0%	100%	0.1	0.0	0.1	1	51	1	0.0	0	0.00	0
0 / 4	6	90%	0%	100%	0.1	0.0	0.1	1	55	1	0.0	0	0.00	0
-5 / -1	2	98%	0%	100%	0.1	0.0	0.1	0	59	0	0.0	0	0.00	0
-10 / -6	1	100%	0%	100%	0.1	0.0	0.1	0	62	0	0.0	0	0.00	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	63	0	0.0	0	0.00	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	65	0	0.0	0	0.00	0
	433							40		13		0		0

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Estimated Annual Energy Usage - EMS Improvements

Building: Bigelow Middle School		Proposed	
Unit #: UV-4	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Classrooms	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: Unit Vent	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	10.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	0.1 kW
12 M - 8 AM	Occupied	50	0	0	17	50	Cooling	0.0 kW
8 AM - 4 PM	Occupied	171	0	0	41	171	Total	0.1 kW
4 PM - 12 AM	Occupied	70	0	0	21	70		
All	Unoccupied	0	0	0	0	0		
Totals		291	0	0	78	291		

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Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Bigelow Middle School
HVAC System: UV-4
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	0.00	0
75 / 79	2	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	0.00	0
70 / 74	9	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	0.00	0
65 / 69	19	0%	0%	100%	0.1	0.0	0.1	2	8	0	0.0	0	0.00	0
60 / 64	30	0%	0%	100%	0.1	0.0	0.1	3	8	0	0.0	0	0.00	0
55 / 59	43	0%	0%	100%	0.1	0.0	0.1	4	9	0	0.0	0	0.00	0
50 / 54	48	14%	0%	100%	0.1	0.0	0.1	5	15	0	0.0	0	0.00	0
45 / 49	50	22%	0%	100%	0.1	0.0	0.1	5	18	1	0.0	0	0.00	0
40 / 44	52	30%	0%	100%	0.1	0.0	0.1	5	22	1	0.0	0	0.00	0
35 / 39	61	38%	0%	100%	0.1	0.0	0.1	6	26	2	0.0	0	0.00	0
30 / 34	69	46%	0%	100%	0.1	0.0	0.1	6	30	3	0.0	0	0.00	0
25 / 29	48	54%	0%	100%	0.1	0.0	0.1	5	35	2	0.0	0	0.00	0
20 / 24	36	62%	0%	100%	0.1	0.0	0.1	3	40	2	0.0	0	0.00	0
15 / 19	24	70%	0%	100%	0.1	0.0	0.1	2	44	2	0.0	0	0.00	0
10 / 14	18	78%	0%	100%	0.1	0.0	0.1	2	49	1	0.0	0	0.00	0
5 / 9	14	86%	0%	100%	0.1	0.0	0.1	1	54	1	0.0	0	0.00	0
0 / 4	8	94%	0%	100%	0.1	0.0	0.1	1	58	1	0.0	0	0.00	0
-5 / -1	3	100%	0%	100%	0.1	0.0	0.1	0	63	0	0.0	0	0.00	0
-10 / -6	2	100%	0%	100%	0.1	0.0	0.1	0	64	0	0.0	0	0.00	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	66	0	0.0	0	0.00	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	67	0	0.0	0	0.00	0
	537							50		17		0		0

NORESCO

Energy Savings Analysis - EMS Improvements

Building: Bigelow Middle School		Existing	Proposed	
Unit #: UV-5	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	10.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	54	0	0	15	54	Fans	0.1 kW
8 AM - 4 PM	Occupied	280	0	0	56	280	Cooling	0.0 kW
4 PM - 12 AM	Occupied	135	0	0	33	135	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		469	0	0	104	469		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	67	0	0	19	67	Fans	0.1 kW
8 AM - 4 PM	Occupied	228	0	0	46	228	Cooling	0.0 kW
4 PM - 12 AM	Occupied	94	0	0	24	94	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		389	0	0	89	389		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	-13	0	0	-4	-13	Fans	0.0 kW
8 AM - 4 PM	Occupied	52	0	0	10	52	Cooling	0.0 kW
4 PM - 12 AM	Occupied	41	0	0	9	41	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		80	0	0	15	80		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Bigelow Middle School
HVAC System: UV-5
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	0.00	0
75 / 79	1	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	0.00	0
70 / 74	7	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	0.00	0
65 / 69	16	0%	0%	100%	0.1	0.0	0.1	2	8	0	0.0	0	0.00	0
60 / 64	24	0%	0%	100%	0.1	0.0	0.1	3	9	0	0.0	0	0.00	0
55 / 59	34	0%	0%	100%	0.1	0.0	0.1	4	10	0	0.0	0	0.00	0
50 / 54	39	16%	0%	100%	0.1	0.0	0.1	5	17	0	0.0	0	0.00	0
45 / 49	40	23%	0%	100%	0.1	0.0	0.1	5	21	1	0.0	0	0.00	0
40 / 44	42	31%	0%	100%	0.1	0.0	0.1	5	25	1	0.0	0	0.00	0
35 / 39	49	38%	0%	100%	0.1	0.0	0.1	6	29	2	0.0	0	0.00	0
30 / 34	55	46%	0%	100%	0.1	0.0	0.1	7	34	3	0.0	0	0.00	0
25 / 29	39	53%	0%	100%	0.1	0.0	0.1	5	38	2	0.0	0	0.00	0
20 / 24	29	61%	0%	100%	0.1	0.0	0.1	4	43	2	0.0	0	0.00	0
15 / 19	19	68%	0%	100%	0.1	0.0	0.1	2	48	1	0.0	0	0.00	0
10 / 14	15	76%	0%	100%	0.1	0.0	0.1	2	53	1	0.0	0	0.00	0
5 / 9	11	83%	0%	100%	0.1	0.0	0.1	1	58	1	0.0	0	0.00	0
0 / 4	6	90%	0%	100%	0.1	0.0	0.1	1	63	1	0.0	0	0.00	0
-5 / -1	2	98%	0%	100%	0.1	0.0	0.1	0	68	0	0.0	0	0.00	0
-10 / -6	1	100%	0%	100%	0.1	0.0	0.1	0	70	0	0.0	0	0.00	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	72	0	0.0	0	0.00	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	74	0	0.0	0	0.00	0
	433							54		15		0		0

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Estimated Annual Energy Usage - EMS Improvements

Building: Bigelow Middle School		Proposed	
Unit #: UV-5	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Classrooms	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: Unit Vent	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	10.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	0.1 kW
12 M - 8 AM	Occupied	67	0	0	19	67	Cooling	0.0 kW
8 AM - 4 PM	Occupied	228	0	0	46	228		
4 PM - 12 AM	Occupied	94	0	0	24	94		
All	Unoccupied	0	0	0	0	0		
Totals		389	0	0	89	389	Total	0.1 kW

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Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Bigelow Middle School
HVAC System: UV-5
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	0.00	0
75 / 79	2	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	0.00	0
70 / 74	9	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	0.00	0
65 / 69	19	0%	0%	100%	0.1	0.0	0.1	2	8	0	0.0	0	0.00	0
60 / 64	30	0%	0%	100%	0.1	0.0	0.1	4	8	0	0.0	0	0.00	0
55 / 59	43	0%	0%	100%	0.1	0.0	0.1	5	9	0	0.0	0	0.00	0
50 / 54	48	14%	0%	100%	0.1	0.0	0.1	6	16	0	0.0	0	0.00	0
45 / 49	50	22%	0%	100%	0.1	0.0	0.1	6	21	1	0.0	0	0.00	0
40 / 44	52	30%	0%	100%	0.1	0.0	0.1	7	25	1	0.0	0	0.00	0
35 / 39	61	38%	0%	100%	0.1	0.0	0.1	8	29	2	0.0	0	0.00	0
30 / 34	69	46%	0%	100%	0.1	0.0	0.1	9	35	3	0.0	0	0.00	0
25 / 29	48	54%	0%	100%	0.1	0.0	0.1	6	40	3	0.0	0	0.00	0
20 / 24	36	62%	0%	100%	0.1	0.0	0.1	4	46	2	0.0	0	0.00	0
15 / 19	24	70%	0%	100%	0.1	0.0	0.1	3	51	2	0.0	0	0.00	0
10 / 14	18	78%	0%	100%	0.1	0.0	0.1	2	57	2	0.0	0	0.00	0
5 / 9	14	86%	0%	100%	0.1	0.0	0.1	2	62	1	0.0	0	0.00	0
0 / 4	8	94%	0%	100%	0.1	0.0	0.1	1	68	1	0.0	0	0.00	0
-5 / -1	3	100%	0%	100%	0.1	0.0	0.1	0	72	0	0.0	0	0.00	0
-10 / -6	2	100%	0%	100%	0.1	0.0	0.1	0	74	0	0.0	0	0.00	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	75	0	0.0	0	0.00	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	77	0	0.0	0	0.00	0
	537							67		19		0		0

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Energy Savings Analysis - EMS Improvements

Building: Bigelow Middle School		Existing	Proposed	
Unit #: UV-6	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	54	0	0	17	54	Fans	0.1 kW
8 AM - 4 PM	Occupied	280	0	0	61	280	Cooling	0.0 kW
4 PM - 12 AM	Occupied	135	0	0	37	135	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		469	0	0	115	469		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	67	0	0	22	67	Fans	0.1 kW
8 AM - 4 PM	Occupied	228	0	0	51	228	Cooling	0.0 kW
4 PM - 12 AM	Occupied	94	0	0	27	94	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		389	0	0	100	389		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	-13	0	0	-5	-13	Fans	0.0 kW
8 AM - 4 PM	Occupied	52	0	0	10	52	Cooling	0.0 kW
4 PM - 12 AM	Occupied	41	0	0	10	41	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		80	0	0	15	80		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Bigelow Middle School
HVAC System: UV-6
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	0.00	0
75 / 79	1	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	0.00	0
70 / 74	7	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	0.00	0
65 / 69	16	0%	0%	100%	0.1	0.0	0.1	2	8	0	0.0	0	0.00	0
60 / 64	24	0%	0%	100%	0.1	0.0	0.1	3	9	0	0.0	0	0.00	0
55 / 59	34	0%	0%	100%	0.1	0.0	0.1	4	10	0	0.0	0	0.00	0
50 / 54	39	16%	0%	100%	0.1	0.0	0.1	5	18	0	0.0	0	0.00	0
45 / 49	40	23%	0%	100%	0.1	0.0	0.1	5	23	1	0.0	0	0.00	0
40 / 44	42	31%	0%	100%	0.1	0.0	0.1	5	28	1	0.0	0	0.00	0
35 / 39	49	38%	0%	100%	0.1	0.0	0.1	6	32	2	0.0	0	0.00	0
30 / 34	55	46%	0%	100%	0.1	0.0	0.1	7	38	3	0.0	0	0.00	0
25 / 29	39	53%	0%	100%	0.1	0.0	0.1	5	43	2	0.0	0	0.00	0
20 / 24	29	61%	0%	100%	0.1	0.0	0.1	4	49	2	0.0	0	0.00	0
15 / 19	19	68%	0%	100%	0.1	0.0	0.1	2	54	2	0.0	0	0.00	0
10 / 14	15	76%	0%	100%	0.1	0.0	0.1	2	60	1	0.0	0	0.00	0
5 / 9	11	83%	0%	100%	0.1	0.0	0.1	1	65	1	0.0	0	0.00	0
0 / 4	6	90%	0%	100%	0.1	0.0	0.1	1	71	1	0.0	0	0.00	0
-5 / -1	2	98%	0%	100%	0.1	0.0	0.1	0	76	0	0.0	0	0.00	0
-10 / -6	1	100%	0%	100%	0.1	0.0	0.1	0	79	0	0.0	0	0.00	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	81	0	0.0	0	0.00	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	82	0	0.0	0	0.00	0
	433							54		17		0		0

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Estimated Annual Energy Usage - EMS Improvements

Building: Bigelow Middle School		Proposed	
Unit #: UV-6	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Classrooms	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: Unit Vent	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	1.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	0.1 kW
12 M - 8 AM	Occupied	67	0	0	22	67	Cooling	0.0 kW
8 AM - 4 PM	Occupied	228	0	0	51	228		
4 PM - 12 AM	Occupied	94	0	0	27	94		
All	Unoccupied	0	0	0	0	0		
Totals		389	0	0	100	389	Total	0.1 kW

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Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Bigelow Middle School
HVAC System: UV-6
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	0.00	0
75 / 79	2	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	0.00	0
70 / 74	9	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	0.00	0
65 / 69	19	0%	0%	100%	0.1	0.0	0.1	2	8	0	0.0	0	0.00	0
60 / 64	30	0%	0%	100%	0.1	0.0	0.1	4	8	0	0.0	0	0.00	0
55 / 59	43	0%	0%	100%	0.1	0.0	0.1	5	9	0	0.0	0	0.00	0
50 / 54	48	14%	0%	100%	0.1	0.0	0.1	6	18	0	0.0	0	0.00	0
45 / 49	50	22%	0%	100%	0.1	0.0	0.1	6	23	1	0.0	0	0.00	0
40 / 44	52	30%	0%	100%	0.1	0.0	0.1	7	28	1	0.0	0	0.00	0
35 / 39	61	38%	0%	100%	0.1	0.0	0.1	8	33	2	0.0	0	0.00	0
30 / 34	69	46%	0%	100%	0.1	0.0	0.1	9	39	4	0.0	0	0.00	0
25 / 29	48	54%	0%	100%	0.1	0.0	0.1	6	45	3	0.0	0	0.00	0
20 / 24	36	62%	0%	100%	0.1	0.0	0.1	4	52	3	0.0	0	0.00	0
15 / 19	24	70%	0%	100%	0.1	0.0	0.1	3	58	2	0.0	0	0.00	0
10 / 14	18	78%	0%	100%	0.1	0.0	0.1	2	64	2	0.0	0	0.00	0
5 / 9	14	86%	0%	100%	0.1	0.0	0.1	2	70	2	0.0	0	0.00	0
0 / 4	8	94%	0%	100%	0.1	0.0	0.1	1	77	1	0.0	0	0.00	0
-5 / -1	3	100%	0%	100%	0.1	0.0	0.1	0	82	0	0.0	0	0.00	0
-10 / -6	2	100%	0%	100%	0.1	0.0	0.1	0	84	0	0.0	0	0.00	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	85	0	0.0	0	0.00	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	87	0	0.0	0	0.00	0
	537							67		22		0		0

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Energy Savings Analysis - EMS Improvements

Building: Bigelow Middle School		Existing	Proposed	
Unit #: UV-7	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	107	0	0	10	107	Fans	0.2 kW
8 AM - 4 PM	Occupied	553	0	0	36	553	Cooling	0.0 kW
4 PM - 12 AM	Occupied	266	0	0	22	266	Total	0.2 kW
All	Unoccupied	0	0	0	0	0		
Totals		926	0	0	69	926		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	132	0	0	13	132	Fans	0.2 kW
8 AM - 4 PM	Occupied	451	0	0	31	451	Cooling	0.0 kW
4 PM - 12 AM	Occupied	185	0	0	16	185	Total	0.2 kW
All	Unoccupied	0	0	0	0	0		
Totals		769	0	0	60	769		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	-26	0	0	-3	-26	Fans	0.0 kW
8 AM - 4 PM	Occupied	102	0	0	6	102	Cooling	0.0 kW
4 PM - 12 AM	Occupied	81	0	0	6	81	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		158	0	0	8	158		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Bigelow Middle School
HVAC System: UV-7
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	0	0%	0%	100%	0.2	0.0	0.2	0	0	0	0.0	0	0.00	0
75 / 79	1	0%	0%	100%	0.2	0.0	0.2	0	0	0	0.0	0	0.00	0
70 / 74	7	0%	0%	100%	0.2	0.0	0.2	2	0	0	0.0	0	0.00	0
65 / 69	16	0%	0%	100%	0.2	0.0	0.2	4	4	0	0.0	0	0.00	0
60 / 64	24	0%	0%	100%	0.2	0.0	0.2	6	4	0	0.0	0	0.00	0
55 / 59	34	0%	0%	100%	0.2	0.0	0.2	8	5	0	0.0	0	0.00	0
50 / 54	39	16%	0%	100%	0.2	0.0	0.2	10	11	0	0.0	0	0.00	0
45 / 49	40	23%	0%	100%	0.2	0.0	0.2	10	14	0	0.0	0	0.00	0
40 / 44	42	31%	0%	100%	0.2	0.0	0.2	10	16	1	0.0	0	0.00	0
35 / 39	49	38%	0%	100%	0.2	0.0	0.2	12	19	1	0.0	0	0.00	0
30 / 34	55	46%	0%	100%	0.2	0.0	0.2	14	23	2	0.0	0	0.00	0
25 / 29	39	53%	0%	100%	0.2	0.0	0.2	10	26	2	0.0	0	0.00	0
20 / 24	29	61%	0%	100%	0.2	0.0	0.2	7	30	1	0.0	0	0.00	0
15 / 19	19	68%	0%	100%	0.2	0.0	0.2	5	33	1	0.0	0	0.00	0
10 / 14	15	76%	0%	100%	0.2	0.0	0.2	4	36	1	0.0	0	0.00	0
5 / 9	11	83%	0%	100%	0.2	0.0	0.2	3	40	1	0.0	0	0.00	0
0 / 4	6	90%	0%	100%	0.2	0.0	0.2	2	43	0	0.0	0	0.00	0
-5 / -1	2	98%	0%	100%	0.2	0.0	0.2	1	47	0	0.0	0	0.00	0
-10 / -6	1	100%	0%	100%	0.2	0.0	0.2	0	48	0	0.0	0	0.00	0
-15 / -11	1	100%	0%	100%	0.2	0.0	0.2	0	49	0	0.0	0	0.00	0
-20 / -16	0	100%	0%	100%	0.2	0.0	0.2	0	50	0	0.0	0	0.00	0
	433							107		10		0		0

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Estimated Annual Energy Usage - EMS Improvements

Building: Bigelow Middle School		Proposed	
Unit #: UV-7	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Classrooms	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: Unit Vent	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	1.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	0.2 kW
12 M - 8 AM	Occupied	132	0	0	13	132	Cooling	0.0 kW
8 AM - 4 PM	Occupied	451	0	0	31	451		
4 PM - 12 AM	Occupied	185	0	0	16	185		
All	Unoccupied	0	0	0	0	0		
Totals		769	0	0	60	769	Total	0.2 kW

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Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Bigelow Middle School
HVAC System: UV-7
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton- Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	0	0%	0%	100%	0.2	0.0	0.2	0	0	0	0.0	0	0.00	0
75 / 79	2	0%	0%	100%	0.2	0.0	0.2	0	0	0	0.0	0	0.00	0
70 / 74	9	0%	0%	100%	0.2	0.0	0.2	2	0	0	0.0	0	0.00	0
65 / 69	19	0%	0%	100%	0.2	0.0	0.2	5	4	0	0.0	0	0.00	0
60 / 64	30	0%	0%	100%	0.2	0.0	0.2	7	4	0	0.0	0	0.00	0
55 / 59	43	0%	0%	100%	0.2	0.0	0.2	11	4	0	0.0	0	0.00	0
50 / 54	48	14%	0%	100%	0.2	0.0	0.2	12	10	0	0.0	0	0.00	0
45 / 49	50	22%	0%	100%	0.2	0.0	0.2	12	14	0	0.0	0	0.00	0
40 / 44	52	30%	0%	100%	0.2	0.0	0.2	13	17	1	0.0	0	0.00	0
35 / 39	61	38%	0%	100%	0.2	0.0	0.2	15	20	1	0.0	0	0.00	0
30 / 34	69	46%	0%	100%	0.2	0.0	0.2	17	24	2	0.0	0	0.00	0
25 / 29	48	54%	0%	100%	0.2	0.0	0.2	12	28	2	0.0	0	0.00	0
20 / 24	36	62%	0%	100%	0.2	0.0	0.2	9	32	2	0.0	0	0.00	0
15 / 19	24	70%	0%	100%	0.2	0.0	0.2	6	36	1	0.0	0	0.00	0
10 / 14	18	78%	0%	100%	0.2	0.0	0.2	5	40	1	0.0	0	0.00	0
5 / 9	14	86%	0%	100%	0.2	0.0	0.2	3	44	1	0.0	0	0.00	0
0 / 4	8	94%	0%	100%	0.2	0.0	0.2	2	47	1	0.0	0	0.00	0
-5 / -1	3	100%	0%	100%	0.2	0.0	0.2	1	51	0	0.0	0	0.00	0
-10 / -6	2	100%	0%	100%	0.2	0.0	0.2	0	52	0	0.0	0	0.00	0
-15 / -11	1	100%	0%	100%	0.2	0.0	0.2	0	52	0	0.0	0	0.00	0
-20 / -16	0	100%	0%	100%	0.2	0.0	0.2	0	53	0	0.0	0	0.00	0
	537							132		13		0		0

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Energy Savings Analysis - EMS Improvements

Building: Bigelow Middle School		Existing	Proposed	
Unit #: UV-8	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	40	0	0	11	40	Fans	0.1 kW
8 AM - 4 PM	Occupied	210	0	0	41	210	Cooling	0.0 kW
4 PM - 12 AM	Occupied	101	0	0	25	101	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		351	0	0	77	351		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	50	0	0	14	50	Fans	0.1 kW
8 AM - 4 PM	Occupied	171	0	0	34	171	Cooling	0.0 kW
4 PM - 12 AM	Occupied	70	0	0	18	70	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		291	0	0	66	291		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	-10	0	0	-3	-10	Fans	0.0 kW
8 AM - 4 PM	Occupied	39	0	0	7	39	Cooling	0.0 kW
4 PM - 12 AM	Occupied	31	0	0	7	31	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		60	0	0	10	60		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Bigelow Middle School
HVAC System: UV-8
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	0.00	0
75 / 79	1	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	0.00	0
70 / 74	7	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	0.00	0
65 / 69	16	0%	0%	100%	0.1	0.0	0.1	1	6	0	0.0	0	0.00	0
60 / 64	24	0%	0%	100%	0.1	0.0	0.1	2	6	0	0.0	0	0.00	0
55 / 59	34	0%	0%	100%	0.1	0.0	0.1	3	6	0	0.0	0	0.00	0
50 / 54	39	16%	0%	100%	0.1	0.0	0.1	4	12	0	0.0	0	0.00	0
45 / 49	40	23%	0%	100%	0.1	0.0	0.1	4	15	0	0.0	0	0.00	0
40 / 44	42	31%	0%	100%	0.1	0.0	0.1	4	18	1	0.0	0	0.00	0
35 / 39	49	38%	0%	100%	0.1	0.0	0.1	5	21	1	0.0	0	0.00	0
30 / 34	55	46%	0%	100%	0.1	0.0	0.1	5	25	2	0.0	0	0.00	0
25 / 29	39	53%	0%	100%	0.1	0.0	0.1	4	29	2	0.0	0	0.00	0
20 / 24	29	61%	0%	100%	0.1	0.0	0.1	3	32	1	0.0	0	0.00	0
15 / 19	19	68%	0%	100%	0.1	0.0	0.1	2	36	1	0.0	0	0.00	0
10 / 14	15	76%	0%	100%	0.1	0.0	0.1	1	40	1	0.0	0	0.00	0
5 / 9	11	83%	0%	100%	0.1	0.0	0.1	1	44	1	0.0	0	0.00	0
0 / 4	6	90%	0%	100%	0.1	0.0	0.1	1	47	0	0.0	0	0.00	0
-5 / -1	2	98%	0%	100%	0.1	0.0	0.1	0	51	0	0.0	0	0.00	0
-10 / -6	1	100%	0%	100%	0.1	0.0	0.1	0	53	0	0.0	0	0.00	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	54	0	0.0	0	0.00	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	55	0	0.0	0	0.00	0
	433							40		11		0		0

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Estimated Annual Energy Usage - EMS Improvements

Building: Bigelow Middle School		Proposed	
Unit #: UV-8	Scheduling And Setback Control	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	50	0	0	14	50	Fans	0.1 kW
8 AM - 4 PM	Occupied	171	0	0	34	171	Cooling	0.0 kW
4 PM - 12 AM	Occupied	70	0	0	18	70		
All	Unoccupied	0	0	0	0	0	Total	0.1 kW
Totals		291	0	0	66	291		

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Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Bigelow Middle School
HVAC System: UV-8
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	0.00	0
75 / 79	2	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	0.00	0
70 / 74	9	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	0.00	0
65 / 69	19	0%	0%	100%	0.1	0.0	0.1	2	5	0	0.0	0	0.00	0
60 / 64	30	0%	0%	100%	0.1	0.0	0.1	3	6	0	0.0	0	0.00	0
55 / 59	43	0%	0%	100%	0.1	0.0	0.1	4	6	0	0.0	0	0.00	0
50 / 54	48	14%	0%	100%	0.1	0.0	0.1	5	12	0	0.0	0	0.00	0
45 / 49	50	22%	0%	100%	0.1	0.0	0.1	5	15	0	0.0	0	0.00	0
40 / 44	52	30%	0%	100%	0.1	0.0	0.1	5	19	1	0.0	0	0.00	0
35 / 39	61	38%	0%	100%	0.1	0.0	0.1	6	22	2	0.0	0	0.00	0
30 / 34	69	46%	0%	100%	0.1	0.0	0.1	6	26	2	0.0	0	0.00	0
25 / 29	48	54%	0%	100%	0.1	0.0	0.1	5	30	2	0.0	0	0.00	0
20 / 24	36	62%	0%	100%	0.1	0.0	0.1	3	34	2	0.0	0	0.00	0
15 / 19	24	70%	0%	100%	0.1	0.0	0.1	2	39	1	0.0	0	0.00	0
10 / 14	18	78%	0%	100%	0.1	0.0	0.1	2	43	1	0.0	0	0.00	0
5 / 9	14	86%	0%	100%	0.1	0.0	0.1	1	47	1	0.0	0	0.00	0
0 / 4	8	94%	0%	100%	0.1	0.0	0.1	1	51	1	0.0	0	0.00	0
-5 / -1	3	100%	0%	100%	0.1	0.0	0.1	0	55	0	0.0	0	0.00	0
-10 / -6	2	100%	0%	100%	0.1	0.0	0.1	0	56	0	0.0	0	0.00	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	57	0	0.0	0	0.00	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	58	0	0.0	0	0.00	0
	537							50		14		0		0

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Energy Savings Analysis - EMS Improvements

Building: Bigelow Middle School		Existing	Proposed	
Unit #: UV-9	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	54	0	0	17	54	Fans	0.1 kW
8 AM - 4 PM	Occupied	280	0	0	61	280	Cooling	0.0 kW
4 PM - 12 AM	Occupied	135	0	0	37	135	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		469	0	0	115	469		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	67	0	0	22	67	Fans	0.1 kW
8 AM - 4 PM	Occupied	228	0	0	51	228	Cooling	0.0 kW
4 PM - 12 AM	Occupied	94	0	0	27	94	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		389	0	0	100	389		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	-13	0	0	-5	-13	Fans	0.0 kW
8 AM - 4 PM	Occupied	52	0	0	10	52	Cooling	0.0 kW
4 PM - 12 AM	Occupied	41	0	0	10	41	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		80	0	0	15	80		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Bigelow Middle School
HVAC System: UV-9
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	0.00	0
75 / 79	1	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	0.00	0
70 / 74	7	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	0.00	0
65 / 69	16	0%	0%	100%	0.1	0.0	0.1	2	8	0	0.0	0	0.00	0
60 / 64	24	0%	0%	100%	0.1	0.0	0.1	3	9	0	0.0	0	0.00	0
55 / 59	34	0%	0%	100%	0.1	0.0	0.1	4	10	0	0.0	0	0.00	0
50 / 54	39	16%	0%	100%	0.1	0.0	0.1	5	18	0	0.0	0	0.00	0
45 / 49	40	23%	0%	100%	0.1	0.0	0.1	5	23	1	0.0	0	0.00	0
40 / 44	42	31%	0%	100%	0.1	0.0	0.1	5	28	1	0.0	0	0.00	0
35 / 39	49	38%	0%	100%	0.1	0.0	0.1	6	32	2	0.0	0	0.00	0
30 / 34	55	46%	0%	100%	0.1	0.0	0.1	7	38	3	0.0	0	0.00	0
25 / 29	39	53%	0%	100%	0.1	0.0	0.1	5	43	2	0.0	0	0.00	0
20 / 24	29	61%	0%	100%	0.1	0.0	0.1	4	49	2	0.0	0	0.00	0
15 / 19	19	68%	0%	100%	0.1	0.0	0.1	2	54	2	0.0	0	0.00	0
10 / 14	15	76%	0%	100%	0.1	0.0	0.1	2	60	1	0.0	0	0.00	0
5 / 9	11	83%	0%	100%	0.1	0.0	0.1	1	65	1	0.0	0	0.00	0
0 / 4	6	90%	0%	100%	0.1	0.0	0.1	1	71	1	0.0	0	0.00	0
-5 / -1	2	98%	0%	100%	0.1	0.0	0.1	0	76	0	0.0	0	0.00	0
-10 / -6	1	100%	0%	100%	0.1	0.0	0.1	0	79	0	0.0	0	0.00	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	81	0	0.0	0	0.00	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	82	0	0.0	0	0.00	0
	433							54		17		0		0

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Estimated Annual Energy Usage - EMS Improvements

Building: Bigelow Middle School		Proposed	
Unit #: UV-9	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Classrooms	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: Unit Vent	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	1.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	0.1 kW
12 M - 8 AM	Occupied	67	0	0	22	67	Cooling	0.0 kW
8 AM - 4 PM	Occupied	228	0	0	51	228		
4 PM - 12 AM	Occupied	94	0	0	27	94		
All	Unoccupied	0	0	0	0	0		
Totals		389	0	0	100	389	Total	0.1 kW

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Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Bigelow Middle School
HVAC System: UV-9
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton- Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	0.00	0
75 / 79	2	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	0.00	0
70 / 74	9	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	0.00	0
65 / 69	19	0%	0%	100%	0.1	0.0	0.1	2	8	0	0.0	0	0.00	0
60 / 64	30	0%	0%	100%	0.1	0.0	0.1	4	8	0	0.0	0	0.00	0
55 / 59	43	0%	0%	100%	0.1	0.0	0.1	5	9	0	0.0	0	0.00	0
50 / 54	48	14%	0%	100%	0.1	0.0	0.1	6	18	0	0.0	0	0.00	0
45 / 49	50	22%	0%	100%	0.1	0.0	0.1	6	23	1	0.0	0	0.00	0
40 / 44	52	30%	0%	100%	0.1	0.0	0.1	7	28	1	0.0	0	0.00	0
35 / 39	61	38%	0%	100%	0.1	0.0	0.1	8	33	2	0.0	0	0.00	0
30 / 34	69	46%	0%	100%	0.1	0.0	0.1	9	39	4	0.0	0	0.00	0
25 / 29	48	54%	0%	100%	0.1	0.0	0.1	6	45	3	0.0	0	0.00	0
20 / 24	36	62%	0%	100%	0.1	0.0	0.1	4	52	3	0.0	0	0.00	0
15 / 19	24	70%	0%	100%	0.1	0.0	0.1	3	58	2	0.0	0	0.00	0
10 / 14	18	78%	0%	100%	0.1	0.0	0.1	2	64	2	0.0	0	0.00	0
5 / 9	14	86%	0%	100%	0.1	0.0	0.1	2	70	2	0.0	0	0.00	0
0 / 4	8	94%	0%	100%	0.1	0.0	0.1	1	77	1	0.0	0	0.00	0
-5 / -1	3	100%	0%	100%	0.1	0.0	0.1	0	82	0	0.0	0	0.00	0
-10 / -6	2	100%	0%	100%	0.1	0.0	0.1	0	84	0	0.0	0	0.00	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	85	0	0.0	0	0.00	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	87	0	0.0	0	0.00	0
537								67		22		0		0

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Energy Savings Analysis - EMS Improvements

Building: Bigelow Middle School		Existing	Proposed	
Unit #: HC-1, 6, 8, 9	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	40	0	0	21	40	Fans	0.1 kW
8 AM - 4 PM	Occupied	210	0	0	79	210	Cooling	0.0 kW
4 PM - 12 AM	Occupied	101	0	0	46	101	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		351	0	0	146	351		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	60	0	0	26	60	Fans	0.1 kW
8 AM - 4 PM	Occupied	206	0	0	64	206	Cooling	0.0 kW
4 PM - 12 AM	Occupied	85	0	0	32	85	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		351	0	0	123	351		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	-20	0	0	-6	-20	Fans	0.0 kW
8 AM - 4 PM	Occupied	4	0	0	15	4	Cooling	0.0 kW
4 PM - 12 AM	Occupied	16	0	0	13	16	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		0	0	0	23	0		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Bigelow Middle School
HVAC System: HC-1, 6, 8, 9
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	0.00	0
75 / 79	1	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	0.00	0
70 / 74	7	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	0.00	0
65 / 69	16	0%	0%	100%	0.1	0.0	0.1	1	14	0	0.0	0	0.00	0
60 / 64	24	0%	0%	100%	0.1	0.0	0.1	2	15	0	0.0	0	0.00	0
55 / 59	34	0%	0%	100%	0.1	0.0	0.1	3	16	0	0.0	0	0.00	0
50 / 54	39	16%	0%	100%	0.1	0.0	0.1	4	25	0	0.0	0	0.00	0
45 / 49	40	23%	0%	100%	0.1	0.0	0.1	4	30	1	0.0	0	0.00	0
40 / 44	42	31%	0%	100%	0.1	0.0	0.1	4	35	1	0.0	0	0.00	0
35 / 39	49	38%	0%	100%	0.1	0.0	0.1	5	40	2	0.0	0	0.00	0
30 / 34	55	46%	0%	100%	0.1	0.0	0.1	5	46	4	0.0	0	0.00	0
25 / 29	39	53%	0%	100%	0.1	0.0	0.1	4	53	3	0.0	0	0.00	0
20 / 24	29	61%	0%	100%	0.1	0.0	0.1	3	60	3	0.0	0	0.00	0
15 / 19	19	68%	0%	100%	0.1	0.0	0.1	2	66	2	0.0	0	0.00	0
10 / 14	15	76%	0%	100%	0.1	0.0	0.1	1	73	2	0.0	0	0.00	0
5 / 9	11	83%	0%	100%	0.1	0.0	0.1	1	79	1	0.0	0	0.00	0
0 / 4	6	90%	0%	100%	0.1	0.0	0.1	1	86	1	0.0	0	0.00	0
-5 / -1	2	98%	0%	100%	0.1	0.0	0.1	0	93	0	0.0	0	0.00	0
-10 / -6	1	100%	0%	100%	0.1	0.0	0.1	0	96	0	0.0	0	0.00	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	99	0	0.0	0	0.00	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	102	0	0.0	0	0.00	0
433					40				21		0			

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Estimated Annual Energy Usage - EMS Improvements

Building: Bigelow Middle School		Proposed	
Unit #: HC-1, 6, 8, 9	Scheduling And Setback Control	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	0.1 kW
12 M - 8 AM	Occupied	60	0	0	26	60	Cooling	0.0 kW
8 AM - 4 PM	Occupied	206	0	0	64	206		
4 PM - 12 AM	Occupied	85	0	0	32	85		
All	Unoccupied	0	0	0	0	0		
Totals		351	0	0	123	351	Total	0.1 kW

NORESCO

Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Bigelow Middle School
HVAC System: HC-1, 6, 8, 9
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	1	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	0.00	0
75 / 79	6	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	0.00	0
70 / 74	26	0%	0%	100%	0.1	0.0	0.1	2	0	0	0.0	0	0.00	0
65 / 69	49	0%	0%	100%	0.1	0.0	0.1	5	13	0	0.0	0	0.00	0
60 / 64	58	0%	0%	100%	0.1	0.0	0.1	5	14	0	0.0	0	0.00	0
55 / 59	60	0%	0%	100%	0.1	0.0	0.1	6	15	0	0.0	0	0.00	0
50 / 54	56	14%	0%	100%	0.1	0.0	0.1	5	24	0	0.0	0	0.00	0
45 / 49	54	22%	0%	100%	0.1	0.0	0.1	5	29	1	0.0	0	0.00	0
40 / 44	53	30%	0%	100%	0.1	0.0	0.1	5	34	2	0.0	0	0.00	0
35 / 39	61	38%	0%	100%	0.1	0.0	0.1	6	40	3	0.0	0	0.00	0
30 / 34	69	46%	0%	100%	0.1	0.0	0.1	6	47	4	0.0	0	0.00	0
25 / 29	48	54%	0%	100%	0.1	0.0	0.1	5	54	4	0.0	0	0.00	0
20 / 24	36	62%	0%	100%	0.1	0.0	0.1	3	62	3	0.0	0	0.00	0
15 / 19	24	70%	0%	100%	0.1	0.0	0.1	2	69	3	0.0	0	0.00	0
10 / 14	18	78%	0%	100%	0.1	0.0	0.1	2	76	2	0.0	0	0.00	0
5 / 9	14	86%	0%	100%	0.1	0.0	0.1	1	84	2	0.0	0	0.00	0
0 / 4	8	94%	0%	100%	0.1	0.0	0.1	1	91	1	0.0	0	0.00	0
-5 / -1	3	100%	0%	100%	0.1	0.0	0.1	0	97	0	0.0	0	0.00	0
-10 / -6	2	100%	0%	100%	0.1	0.0	0.1	0	100	0	0.0	0	0.00	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	103	0	0.0	0	0.00	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	105	0	0.0	0	0.00	0
646					60				26		0			

NORESCO
Energy Savings Analysis

Building: Bigelow Middle School		Existing	Proposed	
Unit #: HC-2	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	40	0	0	18	40	Fans	0.1 kW
8 AM - 4 PM	Occupied	210	0	0	68	210	Cooling	0.0 kW
4 PM - 12 AM	Occupied	101	0	0	40	101	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		351	0	0	127	351		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	50	0	0	23	50	Fans	0.1 kW
8 AM - 4 PM	Occupied	171	0	0	56	171	Cooling	0.0 kW
4 PM - 12 AM	Occupied	70	0	0	29	70	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		291	0	0	109	291		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	-10	0	0	-5	-10	Fans	0.0 kW
8 AM - 4 PM	Occupied	39	0	0	12	39	Cooling	0.0 kW
4 PM - 12 AM	Occupied	31	0	0	11	31	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		60	0	0	18	60		

NORESCO
Energy Savings Analysis

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Bigelow Middle School
HVAC System: HC-2
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	####	0
75 / 79	1	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	9.64	0
70 / 74	7	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	8.65	0
65 / 69	16	0%	0%	100%	0.1	0.0	0.1	1	10	0	0.0	0	8.25	0
60 / 64	24	0%	0%	100%	0.1	0.0	0.1	2	11	0	0.0	0	8.25	0
55 / 59	34	0%	0%	100%	0.1	0.0	0.1	3	12	0	0.0	0	8.25	0
50 / 54	39	16%	0%	100%	0.1	0.0	0.1	4	21	0	0.0	0	8.25	0
45 / 49	40	23%	0%	100%	0.1	0.0	0.1	4	26	1	0.0	0	8.25	0
40 / 44	42	31%	0%	100%	0.1	0.0	0.1	4	30	1	0.0	0	8.25	0
35 / 39	49	38%	0%	100%	0.1	0.0	0.1	5	35	2	0.0	0	8.25	0
30 / 34	55	46%	0%	100%	0.1	0.0	0.1	5	41	3	0.0	0	8.25	0
25 / 29	39	53%	0%	100%	0.1	0.0	0.1	4	47	3	0.0	0	8.25	0
20 / 24	29	61%	0%	100%	0.1	0.0	0.1	3	53	2	0.0	0	8.25	0
15 / 19	19	68%	0%	100%	0.1	0.0	0.1	2	59	2	0.0	0	8.25	0
10 / 14	15	76%	0%	100%	0.1	0.0	0.1	1	65	1	0.0	0	8.25	0
5 / 9	11	83%	0%	100%	0.1	0.0	0.1	1	71	1	0.0	0	8.25	0
0 / 4	6	90%	0%	100%	0.1	0.0	0.1	1	77	1	0.0	0	8.25	0
-5 / -1	2	98%	0%	100%	0.1	0.0	0.1	0	83	0	0.0	0	8.25	0
-10 / -6	1	100%	0%	100%	0.1	0.0	0.1	0	86	0	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	88	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	90	0	0.0	0	8.25	0
433					40				18		0		0	

NORESCO

Estimated Annual Energy Usage - Proposed HVAC System And Controls

Building: Bigelow Middle School		Proposed	
Unit #: HC-2	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Classrooms	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: Unit Vent	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	1.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	50	0	0	23	50	Fans	0.1 kW
8 AM - 4 PM	Occupied	171	0	0	56	171	Cooling	0.0 kW
4 PM - 12 AM	Occupied	70	0	0	29	70	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		291	0	0	109	291		

NORESCO

Estimated Annual Energy Usage - Proposed HVAC System And Controls

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Bigelow Middle School
HVAC System: HC-2
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	13.60	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	12.61	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	11.62	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	10.63	0
75 / 79	2	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	9.64	0
70 / 74	9	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	8.65	0
65 / 69	19	0%	0%	100%	0.1	0.0	0.1	2	10	0	0.0	0	8.25	0
60 / 64	30	0%	0%	100%	0.1	0.0	0.1	3	11	0	0.0	0	8.25	0
55 / 59	43	0%	0%	100%	0.1	0.0	0.1	4	11	0	0.0	0	8.25	0
50 / 54	48	14%	0%	100%	0.1	0.0	0.1	5	20	0	0.0	0	8.25	0
45 / 49	50	22%	0%	100%	0.1	0.0	0.1	5	25	1	0.0	0	8.25	0
40 / 44	52	30%	0%	100%	0.1	0.0	0.1	5	30	1	0.0	0	8.25	0
35 / 39	61	38%	0%	100%	0.1	0.0	0.1	6	36	3	0.0	0	8.25	0
30 / 34	69	46%	0%	100%	0.1	0.0	0.1	6	42	4	0.0	0	8.25	0
25 / 29	48	54%	0%	100%	0.1	0.0	0.1	5	49	3	0.0	0	8.25	0
20 / 24	36	62%	0%	100%	0.1	0.0	0.1	3	56	3	0.0	0	8.25	0
15 / 19	24	70%	0%	100%	0.1	0.0	0.1	2	62	2	0.0	0	8.25	0
10 / 14	18	78%	0%	100%	0.1	0.0	0.1	2	69	2	0.0	0	8.25	0
5 / 9	14	86%	0%	100%	0.1	0.0	0.1	1	76	2	0.0	0	8.25	0
0 / 4	8	94%	0%	100%	0.1	0.0	0.1	1	82	1	0.0	0	8.25	0
-5 / -1	3	100%	0%	100%	0.1	0.0	0.1	0	88	0	0.0	0	8.25	0
-10 / -6	2	100%	0%	100%	0.1	0.0	0.1	0	90	0	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	92	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	94	0	0.0	0	8.25	0
	537							50		23		0		0

NORESCO
Energy Savings Analysis

Building: Bigelow Middle School		Existing	Proposed	
Unit #: HC-3	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	40	0	0	26	40	Fans	0.1 kW
8 AM - 4 PM	Occupied	210	0	0	102	210	Cooling	0.0 kW
4 PM - 12 AM	Occupied	101	0	0	58	101	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		351	0	0	186	351		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	50	0	0	32	50	Fans	0.1 kW
8 AM - 4 PM	Occupied	171	0	0	82	171	Cooling	0.0 kW
4 PM - 12 AM	Occupied	70	0	0	40	70	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		291	0	0	154	291		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	-10	0	0	-6	-10	Fans	0.0 kW
8 AM - 4 PM	Occupied	39	0	0	21	39	Cooling	0.0 kW
4 PM - 12 AM	Occupied	31	0	0	18	31	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		60	0	0	32	60		

NORESCO
Energy Savings Analysis

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Bigelow Middle School
HVAC System: HC-3
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	####	0
75 / 79	1	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	9.64	0
70 / 74	7	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	8.65	0
65 / 69	16	0%	0%	100%	0.1	0.0	0.1	1	21	0	0.0	0	8.25	0
60 / 64	24	0%	0%	100%	0.1	0.0	0.1	2	22	0	0.0	0	8.25	0
55 / 59	34	0%	0%	100%	0.1	0.0	0.1	3	24	0	0.0	0	8.25	0
50 / 54	39	16%	0%	100%	0.1	0.0	0.1	4	34	1	0.0	0	8.25	0
45 / 49	40	23%	0%	100%	0.1	0.0	0.1	4	39	1	0.0	0	8.25	0
40 / 44	42	31%	0%	100%	0.1	0.0	0.1	4	45	2	0.0	0	8.25	0
35 / 39	49	38%	0%	100%	0.1	0.0	0.1	5	50	3	0.0	0	8.25	0
30 / 34	55	46%	0%	100%	0.1	0.0	0.1	5	58	4	0.0	0	8.25	0
25 / 29	39	53%	0%	100%	0.1	0.0	0.1	4	66	4	0.0	0	8.25	0
20 / 24	29	61%	0%	100%	0.1	0.0	0.1	3	74	3	0.0	0	8.25	0
15 / 19	19	68%	0%	100%	0.1	0.0	0.1	2	82	2	0.0	0	8.25	0
10 / 14	15	76%	0%	100%	0.1	0.0	0.1	1	90	2	0.0	0	8.25	0
5 / 9	11	83%	0%	100%	0.1	0.0	0.1	1	98	2	0.0	0	8.25	0
0 / 4	6	90%	0%	100%	0.1	0.0	0.1	1	106	1	0.0	0	8.25	0
-5 / -1	2	98%	0%	100%	0.1	0.0	0.1	0	114	0	0.0	0	8.25	0
-10 / -6	1	100%	0%	100%	0.1	0.0	0.1	0	119	0	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	123	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	127	0	0.0	0	8.25	0
433					40				26		0			

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Estimated Annual Energy Usage - Proposed HVAC System And Controls

Building: Bigelow Middle School		Proposed	
Unit #: HC-3	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Classrooms	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: Unit Vent	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	1.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	0.1 kW
12 M - 8 AM	Occupied	50	0	0	32	50	Cooling	0.0 kW
8 AM - 4 PM	Occupied	171	0	0	82	171		
4 PM - 12 AM	Occupied	70	0	0	40	70		
All	Unoccupied	0	0	0	0	0		
Totals		291	0	0	154	291	Total	0.1 kW

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Estimated Annual Energy Usage - Proposed HVAC System And Controls

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Bigelow Middle School
HVAC System: HC-3
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	13.60	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	12.61	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	11.62	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	10.63	0
75 / 79	2	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	9.64	0
70 / 74	9	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	8.65	0
65 / 69	19	0%	0%	100%	0.1	0.0	0.1	2	20	0	0.0	0	8.25	0
60 / 64	30	0%	0%	100%	0.1	0.0	0.1	3	21	0	0.0	0	8.25	0
55 / 59	43	0%	0%	100%	0.1	0.0	0.1	4	22	0	0.0	0	8.25	0
50 / 54	48	14%	0%	100%	0.1	0.0	0.1	5	32	1	0.0	0	8.25	0
45 / 49	50	22%	0%	100%	0.1	0.0	0.1	5	37	1	0.0	0	8.25	0
40 / 44	52	30%	0%	100%	0.1	0.0	0.1	5	43	2	0.0	0	8.25	0
35 / 39	61	38%	0%	100%	0.1	0.0	0.1	6	49	4	0.0	0	8.25	0
30 / 34	69	46%	0%	100%	0.1	0.0	0.1	6	58	5	0.0	0	8.25	0
25 / 29	48	54%	0%	100%	0.1	0.0	0.1	5	66	5	0.0	0	8.25	0
20 / 24	36	62%	0%	100%	0.1	0.0	0.1	3	75	4	0.0	0	8.25	0
15 / 19	24	70%	0%	100%	0.1	0.0	0.1	2	84	3	0.0	0	8.25	0
10 / 14	18	78%	0%	100%	0.1	0.0	0.1	2	92	3	0.0	0	8.25	0
5 / 9	14	86%	0%	100%	0.1	0.0	0.1	1	101	2	0.0	0	8.25	0
0 / 4	8	94%	0%	100%	0.1	0.0	0.1	1	110	1	0.0	0	8.25	0
-5 / -1	3	100%	0%	100%	0.1	0.0	0.1	0	117	1	0.0	0	8.25	0
-10 / -6	2	100%	0%	100%	0.1	0.0	0.1	0	122	0	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	126	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	130	0	0.0	0	8.25	0
	537							50		32		0		0

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Energy Savings Analysis - EMS Improvements

Building: Bigelow Middle School		Existing	Proposed	
Unit #: HC-4	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	107	0	0	28	107	Fans	0.2 kW
8 AM - 4 PM	Occupied	553	0	0	106	553	Cooling	0.0 kW
4 PM - 12 AM	Occupied	266	0	0	61	266	Total	0.2 kW
All	Unoccupied	0	0	0	0	0		
Totals		926	0	0	194	926		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	132	0	0	35	132	Fans	0.2 kW
8 AM - 4 PM	Occupied	451	0	0	86	451	Cooling	0.0 kW
4 PM - 12 AM	Occupied	185	0	0	43	185	Total	0.2 kW
All	Unoccupied	0	0	0	0	0		
Totals		769	0	0	164	769		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	-26	0	0	-7	-26	Fans	0.0 kW
8 AM - 4 PM	Occupied	102	0	0	20	102	Cooling	0.0 kW
4 PM - 12 AM	Occupied	81	0	0	18	81	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		158	0	0	30	158		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Bigelow Middle School
HVAC System: HC-4
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
80 / 84	0	0%	0%	100%	0.2	0.0	0.2	0	0	0	0.0	0	####	0
75 / 79	1	0%	0%	100%	0.2	0.0	0.2	0	0	0	0.0	0	9.64	0
70 / 74	7	0%	0%	100%	0.2	0.0	0.2	2	0	0	0.0	0	8.65	0
65 / 69	16	0%	0%	100%	0.2	0.0	0.2	4	18	0	0.0	0	8.25	0
60 / 64	24	0%	0%	100%	0.2	0.0	0.2	6	20	0	0.0	0	8.25	0
55 / 59	34	0%	0%	100%	0.2	0.0	0.2	8	21	0	0.0	0	8.25	0
50 / 54	39	16%	0%	100%	0.2	0.0	0.2	10	33	1	0.0	0	8.25	0
45 / 49	40	23%	0%	100%	0.2	0.0	0.2	10	40	1	0.0	0	8.25	0
40 / 44	42	31%	0%	100%	0.2	0.0	0.2	10	47	2	0.0	0	8.25	0
35 / 39	49	38%	0%	100%	0.2	0.0	0.2	12	53	3	0.0	0	8.25	0
30 / 34	55	46%	0%	100%	0.2	0.0	0.2	14	62	5	0.0	0	8.25	0
25 / 29	39	53%	0%	100%	0.2	0.0	0.2	10	71	4	0.0	0	8.25	0
20 / 24	29	61%	0%	100%	0.2	0.0	0.2	7	79	3	0.0	0	8.25	0
15 / 19	19	68%	0%	100%	0.2	0.0	0.2	5	88	3	0.0	0	8.25	0
10 / 14	15	76%	0%	100%	0.2	0.0	0.2	4	97	2	0.0	0	8.25	0
5 / 9	11	83%	0%	100%	0.2	0.0	0.2	3	106	2	0.0	0	8.25	0
0 / 4	6	90%	0%	100%	0.2	0.0	0.2	2	115	1	0.0	0	8.25	0
-5 / -1	2	98%	0%	100%	0.2	0.0	0.2	1	123	0	0.0	0	8.25	0
-10 / -6	1	100%	0%	100%	0.2	0.0	0.2	0	128	0	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.2	0.0	0.2	0	132	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.2	0.0	0.2	0	136	0	0.0	0	8.25	0
433					107				28		0			

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Estimated Annual Energy Usage - Proposed HVAC System And Controls

Building: Bigelow Middle School		Proposed	
Unit #: HC-4	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Classrooms	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: Unit Vent	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	1.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	0.2 kW
12 M - 8 AM	Occupied	132	0	0	35	132	Cooling	0.0 kW
8 AM - 4 PM	Occupied	451	0	0	86	451		
4 PM - 12 AM	Occupied	185	0	0	43	185		
All	Unoccupied	0	0	0	0	0		
	Totals	769	0	0	164	769	Total	0.2 kW

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Estimated Annual Energy Usage - Proposed HVAC System And Controls

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Bigelow Middle School
HVAC System: HC-4
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	13.60	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	12.61	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	11.62	0
80 / 84	0	0%	0%	100%	0.2	0.0	0.2	0	0	0	0.0	0	10.63	0
75 / 79	2	0%	0%	100%	0.2	0.0	0.2	0	0	0	0.0	0	9.64	0
70 / 74	9	0%	0%	100%	0.2	0.0	0.2	2	0	0	0.0	0	8.65	0
65 / 69	19	0%	0%	100%	0.2	0.0	0.2	5	18	0	0.0	0	8.25	0
60 / 64	30	0%	0%	100%	0.2	0.0	0.2	7	19	0	0.0	0	8.25	0
55 / 59	43	0%	0%	100%	0.2	0.0	0.2	11	20	0	0.0	0	8.25	0
50 / 54	48	14%	0%	100%	0.2	0.0	0.2	12	32	1	0.0	0	8.25	0
45 / 49	50	22%	0%	100%	0.2	0.0	0.2	12	39	1	0.0	0	8.25	0
40 / 44	52	30%	0%	100%	0.2	0.0	0.2	13	46	2	0.0	0	8.25	0
35 / 39	61	38%	0%	100%	0.2	0.0	0.2	15	53	4	0.0	0	8.25	0
30 / 34	69	46%	0%	100%	0.2	0.0	0.2	17	63	6	0.0	0	8.25	0
25 / 29	48	54%	0%	100%	0.2	0.0	0.2	12	73	5	0.0	0	8.25	0
20 / 24	36	62%	0%	100%	0.2	0.0	0.2	9	82	4	0.0	0	8.25	0
15 / 19	24	70%	0%	100%	0.2	0.0	0.2	6	92	3	0.0	0	8.25	0
10 / 14	18	78%	0%	100%	0.2	0.0	0.2	5	102	3	0.0	0	8.25	0
5 / 9	14	86%	0%	100%	0.2	0.0	0.2	3	112	2	0.0	0	8.25	0
0 / 4	8	94%	0%	100%	0.2	0.0	0.2	2	121	1	0.0	0	8.25	0
-5 / -1	3	100%	0%	100%	0.2	0.0	0.2	1	130	1	0.0	0	8.25	0
-10 / -6	2	100%	0%	100%	0.2	0.0	0.2	0	133	0	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.2	0.0	0.2	0	137	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.2	0.0	0.2	0	140	0	0.0	0	8.25	0
	537							132		35		0		0

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Energy Savings Analysis - EMS Improvements

Building: Bigelow Middle School		Existing	Proposed	
Unit #: HC-5, 7, 10	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Main Office	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	6.0	6.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	40	41	58	10	98	Fans	0.1 kW
8 AM - 4 PM	Occupied	210	739	1,238	35	1,447	Cooling	5.9 kW
4 PM - 12 AM	Occupied	101	203	313	22	414	Total	6.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		351	982	1,608	67	1,959		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	50	55	77	13	127	Fans	0.1 kW
8 AM - 4 PM	Occupied	171	612	1,023	29	1,194	Cooling	5.9 kW
4 PM - 12 AM	Occupied	70	147	225	15	296	Total	6.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		291	813	1,326	56	1,617		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	-10	-14	-20	-3	-29	Fans	0.0 kW
8 AM - 4 PM	Occupied	39	127	215	6	254	Cooling	0.0 kW
4 PM - 12 AM	Occupied	31	56	87	6	118	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		60	169	282	10	342		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Bigelow Middle School
HVAC System: HC-5, 7, 10
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	2.27	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	2.10	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.94	0
80 / 84	0	0%	77%	100%	0.1	0.0	0.1	0	0	0	1.0	1	1.77	1
75 / 79	1	0%	68%	100%	0.1	0.0	0.1	0	0	0	0.8	4	1.61	6
70 / 74	7	0%	59%	100%	0.1	0.0	0.1	1	0	0	0.6	13	1.44	19
65 / 69	16	0%	50%	100%	0.1	0.0	0.1	1	0	0	0.4	15	1.38	21
60 / 64	24	0%	41%	100%	0.1	0.0	0.1	2	0	0	0.2	8	1.38	11
55 / 59	34	0%	32%	100%	0.1	0.0	0.1	3	0	0	0.0	0	1.38	0
50 / 54	39	16%	24%	100%	0.1	0.0	0.1	4	9	0	0.0	0	1.38	0
45 / 49	40	23%	20%	100%	0.1	0.0	0.1	4	13	0	0.0	0	1.38	0
40 / 44	42	31%	20%	100%	0.1	0.0	0.1	4	16	1	0.0	0	1.38	0
35 / 39	49	38%	20%	100%	0.1	0.0	0.1	5	19	1	0.0	0	1.38	0
30 / 34	55	46%	20%	100%	0.1	0.0	0.1	5	23	2	0.0	0	1.38	0
25 / 29	39	53%	20%	100%	0.1	0.0	0.1	4	26	1	0.0	0	1.38	0
20 / 24	29	61%	20%	100%	0.1	0.0	0.1	3	29	1	0.0	0	1.38	0
15 / 19	19	68%	20%	100%	0.1	0.0	0.1	2	33	1	0.0	0	1.38	0
10 / 14	15	76%	20%	100%	0.1	0.0	0.1	1	36	1	0.0	0	1.38	0
5 / 9	11	83%	20%	100%	0.1	0.0	0.1	1	39	1	0.0	0	1.38	0
0 / 4	6	90%	20%	100%	0.1	0.0	0.1	1	43	0	0.0	0	1.38	0
-5 / -1	2	98%	20%	100%	0.1	0.0	0.1	0	46	0	0.0	0	1.38	0
-10 / -6	1	100%	20%	100%	0.1	0.0	0.1	0	48	0	0.0	0	1.38	0
-15 / -11	1	100%	20%	100%	0.1	0.0	0.1	0	49	0	0.0	0	1.38	0
-20 / -16	0	100%	20%	100%	0.1	0.0	0.1	0	50	0	0.0	0	1.38	0
433					40				10		41			

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Estimated Annual Energy Usage - EMS Improvements

Building: Bigelow Middle School		Proposed	
Unit #: HC-5, 7, 10	Scheduling And Setback Control	Y	Y = Included, N = Not Included
Area Served: Main Office	Supply And Return Fan VFD's	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	6.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	0.1 kW
12 M - 8 AM	Occupied	50	55	77	13	127	Cooling	5.9 kW
8 AM - 4 PM	Occupied	171	612	1,023	29	1,194	Total	6.0 kW
4 PM - 12 AM	Occupied	70	147	225	15	296		
All	Unoccupied	0	0	0	0	0		
Totals		291	813	1,326	56	1,617		

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Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Bigelow Middle School
HVAC System: HC-5, 7, 10
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	2.27	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	2.10	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.94	0
80 / 84	0	0%	77%	100%	0.1	0.0	0.1	0	0	0	1.0	1	1.77	1
75 / 79	2	0%	68%	100%	0.1	0.0	0.1	0	0	0	0.8	5	1.61	8
70 / 74	9	0%	59%	100%	0.1	0.0	0.1	1	0	0	0.6	16	1.44	23
65 / 69	19	0%	50%	100%	0.1	0.0	0.1	2	0	0	0.4	20	1.38	28
60 / 64	30	0%	41%	100%	0.1	0.0	0.1	3	0	0	0.2	12	1.38	16
55 / 59	43	0%	32%	100%	0.1	0.0	0.1	4	0	0	0.0	1	1.38	2
50 / 54	48	14%	24%	100%	0.1	0.0	0.1	5	9	0	0.0	0	1.38	0
45 / 49	50	22%	20%	100%	0.1	0.0	0.1	5	12	0	0.0	0	1.38	0
40 / 44	52	30%	20%	100%	0.1	0.0	0.1	5	16	1	0.0	0	1.38	0
35 / 39	61	38%	20%	100%	0.1	0.0	0.1	6	20	1	0.0	0	1.38	0
30 / 34	69	46%	20%	100%	0.1	0.0	0.1	6	23	2	0.0	0	1.38	0
25 / 29	48	54%	20%	100%	0.1	0.0	0.1	5	27	2	0.0	0	1.38	0
20 / 24	36	62%	20%	100%	0.1	0.0	0.1	3	30	2	0.0	0	1.38	0
15 / 19	24	70%	20%	100%	0.1	0.0	0.1	2	34	1	0.0	0	1.38	0
10 / 14	18	78%	20%	100%	0.1	0.0	0.1	2	38	1	0.0	0	1.38	0
5 / 9	14	86%	20%	100%	0.1	0.0	0.1	1	41	1	0.0	0	1.38	0
0 / 4	8	94%	20%	100%	0.1	0.0	0.1	1	45	1	0.0	0	1.38	0
-5 / -1	3	100%	20%	100%	0.1	0.0	0.1	0	48	0	0.0	0	1.38	0
-10 / -6	2	100%	20%	100%	0.1	0.0	0.1	0	50	0	0.0	0	1.38	0
-15 / -11	1	100%	20%	100%	0.1	0.0	0.1	0	51	0	0.0	0	1.38	0
-20 / -16	0	100%	20%	100%	0.1	0.0	0.1	0	52	0	0.0	0	1.38	0
	537							50		13		55		77

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Energy Savings Analysis - EMS Improvements

Building: Bigelow Middle School		Existing	Proposed	
Unit #: HC-11	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	40	0	0	17	40	Fans	0.1 kW
8 AM - 4 PM	Occupied	210	0	0	66	210	Cooling	0.0 kW
4 PM - 12 AM	Occupied	101	0	0	38	101	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		351	0	0	122	351		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	50	0	0	22	50	Fans	0.1 kW
8 AM - 4 PM	Occupied	171	0	0	54	171	Cooling	0.0 kW
4 PM - 12 AM	Occupied	70	0	0	27	70	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		291	0	0	103	291		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	-10	0	0	-5	-10	Fans	0.0 kW
8 AM - 4 PM	Occupied	39	0	0	12	39	Cooling	0.0 kW
4 PM - 12 AM	Occupied	31	0	0	11	31	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		60	0	0	19	60		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Bigelow Middle School
HVAC System: HC-11
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	####	0
75 / 79	1	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	9.64	0
70 / 74	7	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	8.65	0
65 / 69	16	0%	0%	100%	0.1	0.0	0.1	1	11	0	0.0	0	8.25	0
60 / 64	24	0%	0%	100%	0.1	0.0	0.1	2	12	0	0.0	0	8.25	0
55 / 59	34	0%	0%	100%	0.1	0.0	0.1	3	13	0	0.0	0	8.25	0
50 / 54	39	16%	0%	100%	0.1	0.0	0.1	4	21	0	0.0	0	8.25	0
45 / 49	40	23%	0%	100%	0.1	0.0	0.1	4	25	1	0.0	0	8.25	0
40 / 44	42	31%	0%	100%	0.1	0.0	0.1	4	29	1	0.0	0	8.25	0
35 / 39	49	38%	0%	100%	0.1	0.0	0.1	5	33	2	0.0	0	8.25	0
30 / 34	55	46%	0%	100%	0.1	0.0	0.1	5	39	3	0.0	0	8.25	0
25 / 29	39	53%	0%	100%	0.1	0.0	0.1	4	44	3	0.0	0	8.25	0
20 / 24	29	61%	0%	100%	0.1	0.0	0.1	3	50	2	0.0	0	8.25	0
15 / 19	19	68%	0%	100%	0.1	0.0	0.1	2	55	2	0.0	0	8.25	0
10 / 14	15	76%	0%	100%	0.1	0.0	0.1	1	61	1	0.0	0	8.25	0
5 / 9	11	83%	0%	100%	0.1	0.0	0.1	1	66	1	0.0	0	8.25	0
0 / 4	6	90%	0%	100%	0.1	0.0	0.1	1	72	1	0.0	0	8.25	0
-5 / -1	2	98%	0%	100%	0.1	0.0	0.1	0	77	0	0.0	0	8.25	0
-10 / -6	1	100%	0%	100%	0.1	0.0	0.1	0	80	0	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	83	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	85	0	0.0	0	8.25	0
433					40				17		0			

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Estimated Annual Energy Usage - Proposed HVAC System And Controls

Building: Bigelow Middle School		Proposed	
Unit #: HC-11	Scheduling And Setback Control	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	50	0	0	22	50	Fans	0.1 kW
8 AM - 4 PM	Occupied	171	0	0	54	171	Cooling	0.0 kW
4 PM - 12 AM	Occupied	70	0	0	27	70		
All	Unoccupied	0	0	0	0	0	Total	0.1 kW
Totals		291	0	0	103	291		

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Estimated Annual Energy Usage - Proposed HVAC System And Controls

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Bigelow Middle School
HVAC System: HC-11
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	13.60	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	12.61	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	11.62	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	10.63	0
75 / 79	2	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	9.64	0
70 / 74	9	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	8.65	0
65 / 69	19	0%	0%	100%	0.1	0.0	0.1	2	11	0	0.0	0	8.25	0
60 / 64	30	0%	0%	100%	0.1	0.0	0.1	3	12	0	0.0	0	8.25	0
55 / 59	43	0%	0%	100%	0.1	0.0	0.1	4	12	0	0.0	0	8.25	0
50 / 54	48	14%	0%	100%	0.1	0.0	0.1	5	20	0	0.0	0	8.25	0
45 / 49	50	22%	0%	100%	0.1	0.0	0.1	5	24	1	0.0	0	8.25	0
40 / 44	52	30%	0%	100%	0.1	0.0	0.1	5	29	1	0.0	0	8.25	0
35 / 39	61	38%	0%	100%	0.1	0.0	0.1	6	33	2	0.0	0	8.25	0
30 / 34	69	46%	0%	100%	0.1	0.0	0.1	6	39	4	0.0	0	8.25	0
25 / 29	48	54%	0%	100%	0.1	0.0	0.1	5	45	3	0.0	0	8.25	0
20 / 24	36	62%	0%	100%	0.1	0.0	0.1	3	51	3	0.0	0	8.25	0
15 / 19	24	70%	0%	100%	0.1	0.0	0.1	2	58	2	0.0	0	8.25	0
10 / 14	18	78%	0%	100%	0.1	0.0	0.1	2	64	2	0.0	0	8.25	0
5 / 9	14	86%	0%	100%	0.1	0.0	0.1	1	70	2	0.0	0	8.25	0
0 / 4	8	94%	0%	100%	0.1	0.0	0.1	1	76	1	0.0	0	8.25	0
-5 / -1	3	100%	0%	100%	0.1	0.0	0.1	0	81	0	0.0	0	8.25	0
-10 / -6	2	100%	0%	100%	0.1	0.0	0.1	0	83	0	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	86	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	88	0	0.0	0	8.25	0
	537							50		22		0		0

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Energy Savings Analysis - EMS Improvements

Building: Bigelow Middle School		Existing	Proposed	
Unit #: A	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	40	0	0	26	40	Fans	0.1 kW
8 AM - 4 PM	Occupied	210	0	0	103	210	Cooling	0.0 kW
4 PM - 12 AM	Occupied	101	0	0	58	101	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		351	0	0	187	351		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	50	0	0	31	50	Fans	0.1 kW
8 AM - 4 PM	Occupied	171	0	0	82	171	Cooling	0.0 kW
4 PM - 12 AM	Occupied	70	0	0	39	70	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		291	0	0	152	291		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	-10	0	0	-6	-10	Fans	0.0 kW
8 AM - 4 PM	Occupied	39	0	0	22	39	Cooling	0.0 kW
4 PM - 12 AM	Occupied	31	0	0	18	31	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		60	0	0	34	60		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Bigelow Middle School
HVAC System: A
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	####	0
75 / 79	1	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	9.64	0
70 / 74	7	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	8.65	0
65 / 69	16	0%	0%	100%	0.1	0.0	0.1	1	23	0	0.0	0	8.25	0
60 / 64	24	0%	0%	100%	0.1	0.0	0.1	2	25	0	0.0	0	8.25	0
55 / 59	34	0%	0%	100%	0.1	0.0	0.1	3	26	0	0.0	0	8.25	0
50 / 54	39	16%	0%	100%	0.1	0.0	0.1	4	35	1	0.0	0	8.25	0
45 / 49	40	23%	0%	100%	0.1	0.0	0.1	4	40	1	0.0	0	8.25	0
40 / 44	42	31%	0%	100%	0.1	0.0	0.1	4	45	2	0.0	0	8.25	0
35 / 39	49	38%	0%	100%	0.1	0.0	0.1	5	50	3	0.0	0	8.25	0
30 / 34	55	46%	0%	100%	0.1	0.0	0.1	5	57	4	0.0	0	8.25	0
25 / 29	39	53%	0%	100%	0.1	0.0	0.1	4	65	4	0.0	0	8.25	0
20 / 24	29	61%	0%	100%	0.1	0.0	0.1	3	73	3	0.0	0	8.25	0
15 / 19	19	68%	0%	100%	0.1	0.0	0.1	2	81	2	0.0	0	8.25	0
10 / 14	15	76%	0%	100%	0.1	0.0	0.1	1	88	2	0.0	0	8.25	0
5 / 9	11	83%	0%	100%	0.1	0.0	0.1	1	96	2	0.0	0	8.25	0
0 / 4	6	90%	0%	100%	0.1	0.0	0.1	1	104	1	0.0	0	8.25	0
-5 / -1	2	98%	0%	100%	0.1	0.0	0.1	0	111	0	0.0	0	8.25	0
-10 / -6	1	100%	0%	100%	0.1	0.0	0.1	0	117	0	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	121	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	126	0	0.0	0	8.25	0
433								40		26		0		0

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Estimated Annual Energy Usage - EMS Improvements

Building: Bigelow Middle School		Proposed	
Unit #: A	Scheduling And Setback Control	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Proposed EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	0.1 kW
12 M - 8 AM	Occupied	50	0	0	31	50	Cooling	0.0 kW
8 AM - 4 PM	Occupied	171	0	0	82	171		
4 PM - 12 AM	Occupied	70	0	0	39	70		
All	Unoccupied	0	0	0	0	0		
Totals		291	0	0	152	291	Total	0.1 kW

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Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Bigelow Middle School
HVAC System: A
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	13.60	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	12.61	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	11.62	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	10.63	0
75 / 79	2	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	9.64	0
70 / 74	9	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	8.65	0
65 / 69	19	0%	0%	100%	0.1	0.0	0.1	2	22	0	0.0	0	8.25	0
60 / 64	30	0%	0%	100%	0.1	0.0	0.1	3	23	0	0.0	0	8.25	0
55 / 59	43	0%	0%	100%	0.1	0.0	0.1	4	25	0	0.0	0	8.25	0
50 / 54	48	14%	0%	100%	0.1	0.0	0.1	5	33	1	0.0	0	8.25	0
45 / 49	50	22%	0%	100%	0.1	0.0	0.1	5	38	1	0.0	0	8.25	0
40 / 44	52	30%	0%	100%	0.1	0.0	0.1	5	43	2	0.0	0	8.25	0
35 / 39	61	38%	0%	100%	0.1	0.0	0.1	6	48	3	0.0	0	8.25	0
30 / 34	69	46%	0%	100%	0.1	0.0	0.1	6	56	5	0.0	0	8.25	0
25 / 29	48	54%	0%	100%	0.1	0.0	0.1	5	65	5	0.0	0	8.25	0
20 / 24	36	62%	0%	100%	0.1	0.0	0.1	3	73	4	0.0	0	8.25	0
15 / 19	24	70%	0%	100%	0.1	0.0	0.1	2	81	3	0.0	0	8.25	0
10 / 14	18	78%	0%	100%	0.1	0.0	0.1	2	89	3	0.0	0	8.25	0
5 / 9	14	86%	0%	100%	0.1	0.0	0.1	1	98	2	0.0	0	8.25	0
0 / 4	8	94%	0%	100%	0.1	0.0	0.1	1	106	1	0.0	0	8.25	0
-5 / -1	3	100%	0%	100%	0.1	0.0	0.1	0	114	1	0.0	0	8.25	0
-10 / -6	2	100%	0%	100%	0.1	0.0	0.1	0	118	0	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	123	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	127	0	0.0	0	8.25	0
	537							50		31		0		0

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Energy Savings Analysis - EMS Improvements

Building: Bigelow Middle School		Existing	Proposed	
Unit #: B	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	40	0	0	26	40	Fans	0.1 kW
8 AM - 4 PM	Occupied	210	0	0	103	210	Cooling	0.0 kW
4 PM - 12 AM	Occupied	101	0	0	58	101	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		351	0	0	187	351		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	50	0	0	31	50	Fans	0.1 kW
8 AM - 4 PM	Occupied	171	0	0	82	171	Cooling	0.0 kW
4 PM - 12 AM	Occupied	70	0	0	39	70	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		291	0	0	152	291		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	-10	0	0	-6	-10	Fans	0.0 kW
8 AM - 4 PM	Occupied	39	0	0	22	39	Cooling	0.0 kW
4 PM - 12 AM	Occupied	31	0	0	18	31	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		60	0	0	34	60		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Bigelow Middle School
HVAC System: B
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	####	0
75 / 79	1	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	9.64	0
70 / 74	7	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	8.65	0
65 / 69	16	0%	0%	100%	0.1	0.0	0.1	1	23	0	0.0	0	8.25	0
60 / 64	24	0%	0%	100%	0.1	0.0	0.1	2	25	0	0.0	0	8.25	0
55 / 59	34	0%	0%	100%	0.1	0.0	0.1	3	26	0	0.0	0	8.25	0
50 / 54	39	16%	0%	100%	0.1	0.0	0.1	4	35	1	0.0	0	8.25	0
45 / 49	40	23%	0%	100%	0.1	0.0	0.1	4	40	1	0.0	0	8.25	0
40 / 44	42	31%	0%	100%	0.1	0.0	0.1	4	45	2	0.0	0	8.25	0
35 / 39	49	38%	0%	100%	0.1	0.0	0.1	5	50	3	0.0	0	8.25	0
30 / 34	55	46%	0%	100%	0.1	0.0	0.1	5	57	4	0.0	0	8.25	0
25 / 29	39	53%	0%	100%	0.1	0.0	0.1	4	65	4	0.0	0	8.25	0
20 / 24	29	61%	0%	100%	0.1	0.0	0.1	3	73	3	0.0	0	8.25	0
15 / 19	19	68%	0%	100%	0.1	0.0	0.1	2	81	2	0.0	0	8.25	0
10 / 14	15	76%	0%	100%	0.1	0.0	0.1	1	88	2	0.0	0	8.25	0
5 / 9	11	83%	0%	100%	0.1	0.0	0.1	1	96	2	0.0	0	8.25	0
0 / 4	6	90%	0%	100%	0.1	0.0	0.1	1	104	1	0.0	0	8.25	0
-5 / -1	2	98%	0%	100%	0.1	0.0	0.1	0	111	0	0.0	0	8.25	0
-10 / -6	1	100%	0%	100%	0.1	0.0	0.1	0	117	0	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	121	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	126	0	0.0	0	8.25	0
433					40				26		0			

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Estimated Annual Energy Usage - Proposed EMS Improvements

Building: Bigelow Middle School		Proposed	
Unit #: B	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Classrooms	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: Unit Vent	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	1.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - Proposed EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	0.1 kW
12 M - 8 AM	Occupied	50	0	0	31	50	Cooling	0.0 kW
8 AM - 4 PM	Occupied	171	0	0	82	171		
4 PM - 12 AM	Occupied	70	0	0	39	70		
All	Unoccupied	0	0	0	0	0		
Totals		291	0	0	152	291	Total	0.1 kW

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Estimated Annual Energy Usage - Proposed EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Bigelow Middle School
HVAC System: B
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton- Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	13.60	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	12.61	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	11.62	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	10.63	0
75 / 79	2	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	9.64	0
70 / 74	9	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	8.65	0
65 / 69	19	0%	0%	100%	0.1	0.0	0.1	2	22	0	0.0	0	8.25	0
60 / 64	30	0%	0%	100%	0.1	0.0	0.1	3	23	0	0.0	0	8.25	0
55 / 59	43	0%	0%	100%	0.1	0.0	0.1	4	25	0	0.0	0	8.25	0
50 / 54	48	14%	0%	100%	0.1	0.0	0.1	5	33	1	0.0	0	8.25	0
45 / 49	50	22%	0%	100%	0.1	0.0	0.1	5	38	1	0.0	0	8.25	0
40 / 44	52	30%	0%	100%	0.1	0.0	0.1	5	43	2	0.0	0	8.25	0
35 / 39	61	38%	0%	100%	0.1	0.0	0.1	6	48	3	0.0	0	8.25	0
30 / 34	69	46%	0%	100%	0.1	0.0	0.1	6	56	5	0.0	0	8.25	0
25 / 29	48	54%	0%	100%	0.1	0.0	0.1	5	65	5	0.0	0	8.25	0
20 / 24	36	62%	0%	100%	0.1	0.0	0.1	3	73	4	0.0	0	8.25	0
15 / 19	24	70%	0%	100%	0.1	0.0	0.1	2	81	3	0.0	0	8.25	0
10 / 14	18	78%	0%	100%	0.1	0.0	0.1	2	89	3	0.0	0	8.25	0
5 / 9	14	86%	0%	100%	0.1	0.0	0.1	1	98	2	0.0	0	8.25	0
0 / 4	8	94%	0%	100%	0.1	0.0	0.1	1	106	1	0.0	0	8.25	0
-5 / -1	3	100%	0%	100%	0.1	0.0	0.1	0	114	1	0.0	0	8.25	0
-10 / -6	2	100%	0%	100%	0.1	0.0	0.1	0	118	0	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	123	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	127	0	0.0	0	8.25	0
537								50		31		0		0

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Energy Savings Analysis - EMS Improvements

Building: Bigelow Middle School		Existing	Proposed	
Unit #: C	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	40	0	0	21	40	Fans	0.1 kW
8 AM - 4 PM	Occupied	210	0	0	83	210	Cooling	0.0 kW
4 PM - 12 AM	Occupied	101	0	0	46	101	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		351	0	0	149	351		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	50	0	0	25	50	Fans	0.1 kW
8 AM - 4 PM	Occupied	171	0	0	65	171	Cooling	0.0 kW
4 PM - 12 AM	Occupied	70	0	0	31	70	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		291	0	0	122	291		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	-10	0	0	-5	-10	Fans	0.0 kW
8 AM - 4 PM	Occupied	39	0	0	17	39	Cooling	0.0 kW
4 PM - 12 AM	Occupied	31	0	0	15	31	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		60	0	0	27	60		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Bigelow Middle School
HVAC System: C
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	####	0
75 / 79	1	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	9.64	0
70 / 74	7	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	8.65	0
65 / 69	16	0%	0%	100%	0.1	0.0	0.1	1	18	0	0.0	0	8.25	0
60 / 64	24	0%	0%	100%	0.1	0.0	0.1	2	20	0	0.0	0	8.25	0
55 / 59	34	0%	0%	100%	0.1	0.0	0.1	3	21	0	0.0	0	8.25	0
50 / 54	39	16%	0%	100%	0.1	0.0	0.1	4	28	0	0.0	0	8.25	0
45 / 49	40	23%	0%	100%	0.1	0.0	0.1	4	32	1	0.0	0	8.25	0
40 / 44	42	31%	0%	100%	0.1	0.0	0.1	4	36	1	0.0	0	8.25	0
35 / 39	49	38%	0%	100%	0.1	0.0	0.1	5	40	2	0.0	0	8.25	0
30 / 34	55	46%	0%	100%	0.1	0.0	0.1	5	46	4	0.0	0	8.25	0
25 / 29	39	53%	0%	100%	0.1	0.0	0.1	4	52	3	0.0	0	8.25	0
20 / 24	29	61%	0%	100%	0.1	0.0	0.1	3	58	3	0.0	0	8.25	0
15 / 19	19	68%	0%	100%	0.1	0.0	0.1	2	64	2	0.0	0	8.25	0
10 / 14	15	76%	0%	100%	0.1	0.0	0.1	1	71	2	0.0	0	8.25	0
5 / 9	11	83%	0%	100%	0.1	0.0	0.1	1	77	1	0.0	0	8.25	0
0 / 4	6	90%	0%	100%	0.1	0.0	0.1	1	83	1	0.0	0	8.25	0
-5 / -1	2	98%	0%	100%	0.1	0.0	0.1	0	89	0	0.0	0	8.25	0
-10 / -6	1	100%	0%	100%	0.1	0.0	0.1	0	93	0	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	97	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	101	0	0.0	0	8.25	0
433					40				21		0		0	

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Estimated Annual Energy Usage - Proposed EMS Improvements

Building: Bigelow Middle School		Proposed	
Unit #: C	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Classrooms	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: Unit Vent	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	1.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - Proposed EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	50	0	0	25	50	Fans	0.1 kW
8 AM - 4 PM	Occupied	171	0	0	65	171	Cooling	0.0 kW
4 PM - 12 AM	Occupied	70	0	0	31	70	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		291	0	0	122	291		

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Estimated Annual Energy Usage - Proposed EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Bigelow Middle School
HVAC System: C
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	13.60	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	12.61	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	11.62	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	10.63	0
75 / 79	2	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	9.64	0
70 / 74	9	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	8.65	0
65 / 69	19	0%	0%	100%	0.1	0.0	0.1	2	18	0	0.0	0	8.25	0
60 / 64	30	0%	0%	100%	0.1	0.0	0.1	3	19	0	0.0	0	8.25	0
55 / 59	43	0%	0%	100%	0.1	0.0	0.1	4	20	0	0.0	0	8.25	0
50 / 54	48	14%	0%	100%	0.1	0.0	0.1	5	26	1	0.0	0	8.25	0
45 / 49	50	22%	0%	100%	0.1	0.0	0.1	5	30	1	0.0	0	8.25	0
40 / 44	52	30%	0%	100%	0.1	0.0	0.1	5	34	2	0.0	0	8.25	0
35 / 39	61	38%	0%	100%	0.1	0.0	0.1	6	38	3	0.0	0	8.25	0
30 / 34	69	46%	0%	100%	0.1	0.0	0.1	6	45	4	0.0	0	8.25	0
25 / 29	48	54%	0%	100%	0.1	0.0	0.1	5	52	4	0.0	0	8.25	0
20 / 24	36	62%	0%	100%	0.1	0.0	0.1	3	58	3	0.0	0	8.25	0
15 / 19	24	70%	0%	100%	0.1	0.0	0.1	2	65	2	0.0	0	8.25	0
10 / 14	18	78%	0%	100%	0.1	0.0	0.1	2	72	2	0.0	0	8.25	0
5 / 9	14	86%	0%	100%	0.1	0.0	0.1	1	78	2	0.0	0	8.25	0
0 / 4	8	94%	0%	100%	0.1	0.0	0.1	1	85	1	0.0	0	8.25	0
-5 / -1	3	100%	0%	100%	0.1	0.0	0.1	0	91	0	0.0	0	8.25	0
-10 / -6	2	100%	0%	100%	0.1	0.0	0.1	0	94	0	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	98	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	102	0	0.0	0	8.25	0
	537							50		25		0		0

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Energy Savings Analysis - EMS Improvements

Building: Bigelow Middle School		Existing	Proposed	
Unit #: D	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	40	0	0	22	40	Fans	0.1 kW
8 AM - 4 PM	Occupied	210	0	0	85	210	Cooling	0.0 kW
4 PM - 12 AM	Occupied	101	0	0	48	101	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		351	0	0	155	351		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	50	0	0	27	50	Fans	0.1 kW
8 AM - 4 PM	Occupied	171	0	0	68	171	Cooling	0.0 kW
4 PM - 12 AM	Occupied	70	0	0	33	70	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		291	0	0	128	291		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	-10	0	0	-5	-10	Fans	0.0 kW
8 AM - 4 PM	Occupied	39	0	0	17	39	Cooling	0.0 kW
4 PM - 12 AM	Occupied	31	0	0	15	31	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		60	0	0	27	60		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Bigelow Middle School
HVAC System: D
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	####	0
75 / 79	1	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	9.64	0
70 / 74	7	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	8.65	0
65 / 69	16	0%	0%	100%	0.1	0.0	0.1	1	17	0	0.0	0	8.25	0
60 / 64	24	0%	0%	100%	0.1	0.0	0.1	2	19	0	0.0	0	8.25	0
55 / 59	34	0%	0%	100%	0.1	0.0	0.1	3	20	0	0.0	0	8.25	0
50 / 54	39	16%	0%	100%	0.1	0.0	0.1	4	28	0	0.0	0	8.25	0
45 / 49	40	23%	0%	100%	0.1	0.0	0.1	4	33	1	0.0	0	8.25	0
40 / 44	42	31%	0%	100%	0.1	0.0	0.1	4	37	1	0.0	0	8.25	0
35 / 39	49	38%	0%	100%	0.1	0.0	0.1	5	42	2	0.0	0	8.25	0
30 / 34	55	46%	0%	100%	0.1	0.0	0.1	5	48	4	0.0	0	8.25	0
25 / 29	39	53%	0%	100%	0.1	0.0	0.1	4	55	3	0.0	0	8.25	0
20 / 24	29	61%	0%	100%	0.1	0.0	0.1	3	62	3	0.0	0	8.25	0
15 / 19	19	68%	0%	100%	0.1	0.0	0.1	2	68	2	0.0	0	8.25	0
10 / 14	15	76%	0%	100%	0.1	0.0	0.1	1	75	2	0.0	0	8.25	0
5 / 9	11	83%	0%	100%	0.1	0.0	0.1	1	82	1	0.0	0	8.25	0
0 / 4	6	90%	0%	100%	0.1	0.0	0.1	1	88	1	0.0	0	8.25	0
-5 / -1	2	98%	0%	100%	0.1	0.0	0.1	0	95	0	0.0	0	8.25	0
-10 / -6	1	100%	0%	100%	0.1	0.0	0.1	0	99	0	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	102	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	106	0	0.0	0	8.25	0
433					40				22		0			

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Estimated Annual Energy Usage - Proposed EMS Improvements

Building: Bigelow Middle School		Proposed	
Unit #: D	Scheduling And Setback Control	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Proposed EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	50	0	0	27	50	Fans	0.1 kW
8 AM - 4 PM	Occupied	171	0	0	68	171	Cooling	0.0 kW
4 PM - 12 AM	Occupied	70	0	0	33	70	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		291	0	0	128	291		

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Estimated Annual Energy Usage - Proposed EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Bigelow Middle School
HVAC System: D
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	13.60	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	12.61	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	11.62	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	10.63	0
75 / 79	2	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	9.64	0
70 / 74	9	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	8.65	0
65 / 69	19	0%	0%	100%	0.1	0.0	0.1	2	17	0	0.0	0	8.25	0
60 / 64	30	0%	0%	100%	0.1	0.0	0.1	3	18	0	0.0	0	8.25	0
55 / 59	43	0%	0%	100%	0.1	0.0	0.1	4	19	0	0.0	0	8.25	0
50 / 54	48	14%	0%	100%	0.1	0.0	0.1	5	26	1	0.0	0	8.25	0
45 / 49	50	22%	0%	100%	0.1	0.0	0.1	5	31	1	0.0	0	8.25	0
40 / 44	52	30%	0%	100%	0.1	0.0	0.1	5	36	2	0.0	0	8.25	0
35 / 39	61	38%	0%	100%	0.1	0.0	0.1	6	41	3	0.0	0	8.25	0
30 / 34	69	46%	0%	100%	0.1	0.0	0.1	6	48	5	0.0	0	8.25	0
25 / 29	48	54%	0%	100%	0.1	0.0	0.1	5	55	4	0.0	0	8.25	0
20 / 24	36	62%	0%	100%	0.1	0.0	0.1	3	62	3	0.0	0	8.25	0
15 / 19	24	70%	0%	100%	0.1	0.0	0.1	2	70	3	0.0	0	8.25	0
10 / 14	18	78%	0%	100%	0.1	0.0	0.1	2	77	2	0.0	0	8.25	0
5 / 9	14	86%	0%	100%	0.1	0.0	0.1	1	84	2	0.0	0	8.25	0
0 / 4	8	94%	0%	100%	0.1	0.0	0.1	1	91	1	0.0	0	8.25	0
-5 / -1	3	100%	0%	100%	0.1	0.0	0.1	0	98	0	0.0	0	8.25	0
-10 / -6	2	100%	0%	100%	0.1	0.0	0.1	0	101	0	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	105	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	108	0	0.0	0	8.25	0
	537							50		27		0		0

NORESCO

Energy Savings Analysis - EMS Improvements

Building: Bigelow Middle School		Existing	Proposed	
Unit #: E	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	40	0	0	17	40	Fans	0.1 kW
8 AM - 4 PM	Occupied	210	0	0	68	210	Cooling	0.0 kW
4 PM - 12 AM	Occupied	101	0	0	39	101	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		351	0	0	124	351		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	50	0	0	21	50	Fans	0.1 kW
8 AM - 4 PM	Occupied	171	0	0	55	171	Cooling	0.0 kW
4 PM - 12 AM	Occupied	70	0	0	27	70	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		291	0	0	103	291		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	-10	0	0	-4	-10	Fans	0.0 kW
8 AM - 4 PM	Occupied	39	0	0	14	39	Cooling	0.0 kW
4 PM - 12 AM	Occupied	31	0	0	12	31	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		60	0	0	21	60		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Bigelow Middle School
HVAC System: E
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	####	0
75 / 79	1	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	9.64	0
70 / 74	7	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	8.65	0
65 / 69	16	0%	0%	100%	0.1	0.0	0.1	1	14	0	0.0	0	8.25	0
60 / 64	24	0%	0%	100%	0.1	0.0	0.1	2	15	0	0.0	0	8.25	0
55 / 59	34	0%	0%	100%	0.1	0.0	0.1	3	16	0	0.0	0	8.25	0
50 / 54	39	16%	0%	100%	0.1	0.0	0.1	4	22	0	0.0	0	8.25	0
45 / 49	40	23%	0%	100%	0.1	0.0	0.1	4	26	1	0.0	0	8.25	0
40 / 44	42	31%	0%	100%	0.1	0.0	0.1	4	30	1	0.0	0	8.25	0
35 / 39	49	38%	0%	100%	0.1	0.0	0.1	5	33	2	0.0	0	8.25	0
30 / 34	55	46%	0%	100%	0.1	0.0	0.1	5	39	3	0.0	0	8.25	0
25 / 29	39	53%	0%	100%	0.1	0.0	0.1	4	44	3	0.0	0	8.25	0
20 / 24	29	61%	0%	100%	0.1	0.0	0.1	3	49	2	0.0	0	8.25	0
15 / 19	19	68%	0%	100%	0.1	0.0	0.1	2	55	2	0.0	0	8.25	0
10 / 14	15	76%	0%	100%	0.1	0.0	0.1	1	60	1	0.0	0	8.25	0
5 / 9	11	83%	0%	100%	0.1	0.0	0.1	1	65	1	0.0	0	8.25	0
0 / 4	6	90%	0%	100%	0.1	0.0	0.1	1	71	1	0.0	0	8.25	0
-5 / -1	2	98%	0%	100%	0.1	0.0	0.1	0	76	0	0.0	0	8.25	0
-10 / -6	1	100%	0%	100%	0.1	0.0	0.1	0	79	0	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	82	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	85	0	0.0	0	8.25	0
433					40				17		0			

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Estimated Annual Energy Usage - Proposed EMS Improvements

Building: Bigelow Middle School		Proposed	
Unit #: E	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Classrooms	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: Unit Vent	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	1.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	0.1 kW
12 M - 8 AM	Occupied	50	0	0	21	50	Cooling	0.0 kW
8 AM - 4 PM	Occupied	171	0	0	55	171		
4 PM - 12 AM	Occupied	70	0	0	27	70		
All	Unoccupied	0	0	0	0	0		
Totals		291	0	0	103	291	Total	0.1 kW

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Estimated Annual Energy Usage - Proposed EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Bigelow Middle School
HVAC System: E
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	13.60	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	12.61	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	11.62	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	10.63	0
75 / 79	2	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	9.64	0
70 / 74	9	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	8.65	0
65 / 69	19	0%	0%	100%	0.1	0.0	0.1	2	13	0	0.0	0	8.25	0
60 / 64	30	0%	0%	100%	0.1	0.0	0.1	3	14	0	0.0	0	8.25	0
55 / 59	43	0%	0%	100%	0.1	0.0	0.1	4	15	0	0.0	0	8.25	0
50 / 54	48	14%	0%	100%	0.1	0.0	0.1	5	21	0	0.0	0	8.25	0
45 / 49	50	22%	0%	100%	0.1	0.0	0.1	5	25	1	0.0	0	8.25	0
40 / 44	52	30%	0%	100%	0.1	0.0	0.1	5	29	1	0.0	0	8.25	0
35 / 39	61	38%	0%	100%	0.1	0.0	0.1	6	33	2	0.0	0	8.25	0
30 / 34	69	46%	0%	100%	0.1	0.0	0.1	6	38	4	0.0	0	8.25	0
25 / 29	48	54%	0%	100%	0.1	0.0	0.1	5	44	3	0.0	0	8.25	0
20 / 24	36	62%	0%	100%	0.1	0.0	0.1	3	50	3	0.0	0	8.25	0
15 / 19	24	70%	0%	100%	0.1	0.0	0.1	2	56	2	0.0	0	8.25	0
10 / 14	18	78%	0%	100%	0.1	0.0	0.1	2	62	2	0.0	0	8.25	0
5 / 9	14	86%	0%	100%	0.1	0.0	0.1	1	67	1	0.0	0	8.25	0
0 / 4	8	94%	0%	100%	0.1	0.0	0.1	1	73	1	0.0	0	8.25	0
-5 / -1	3	100%	0%	100%	0.1	0.0	0.1	0	78	0	0.0	0	8.25	0
-10 / -6	2	100%	0%	100%	0.1	0.0	0.1	0	81	0	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	84	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	86	0	0.0	0	8.25	0
	537							50		21		0		0

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Energy Savings Analysis - EMS Improvements

Building: Bigelow Middle School		Existing	Proposed	
Unit #: F	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	40	0	0	21	40	Fans	0.1 kW
8 AM - 4 PM	Occupied	210	0	0	85	210	Cooling	0.0 kW
4 PM - 12 AM	Occupied	101	0	0	47	101	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		351	0	0	152	351		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	50	0	0	25	50	Fans	0.1 kW
8 AM - 4 PM	Occupied	171	0	0	66	171	Cooling	0.0 kW
4 PM - 12 AM	Occupied	70	0	0	31	70	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		291	0	0	122	291		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	-10	0	0	-4	-10	Fans	0.0 kW
8 AM - 4 PM	Occupied	39	0	0	19	39	Cooling	0.0 kW
4 PM - 12 AM	Occupied	31	0	0	15	31	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		60	0	0	30	60		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Bigelow Middle School
HVAC System: F
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	####	0
75 / 79	1	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	9.64	0
70 / 74	7	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	8.65	0
65 / 69	16	0%	0%	100%	0.1	0.0	0.1	1	21	0	0.0	0	8.25	0
60 / 64	24	0%	0%	100%	0.1	0.0	0.1	2	22	0	0.0	0	8.25	0
55 / 59	34	0%	0%	100%	0.1	0.0	0.1	3	24	0	0.0	0	8.25	0
50 / 54	39	16%	0%	100%	0.1	0.0	0.1	4	30	0	0.0	0	8.25	0
45 / 49	40	23%	0%	100%	0.1	0.0	0.1	4	33	1	0.0	0	8.25	0
40 / 44	42	31%	0%	100%	0.1	0.0	0.1	4	37	1	0.0	0	8.25	0
35 / 39	49	38%	0%	100%	0.1	0.0	0.1	5	40	2	0.0	0	8.25	0
30 / 34	55	46%	0%	100%	0.1	0.0	0.1	5	46	4	0.0	0	8.25	0
25 / 29	39	53%	0%	100%	0.1	0.0	0.1	4	52	3	0.0	0	8.25	0
20 / 24	29	61%	0%	100%	0.1	0.0	0.1	3	58	3	0.0	0	8.25	0
15 / 19	19	68%	0%	100%	0.1	0.0	0.1	2	64	2	0.0	0	8.25	0
10 / 14	15	76%	0%	100%	0.1	0.0	0.1	1	70	2	0.0	0	8.25	0
5 / 9	11	83%	0%	100%	0.1	0.0	0.1	1	76	1	0.0	0	8.25	0
0 / 4	6	90%	0%	100%	0.1	0.0	0.1	1	82	1	0.0	0	8.25	0
-5 / -1	2	98%	0%	100%	0.1	0.0	0.1	0	88	0	0.0	0	8.25	0
-10 / -6	1	100%	0%	100%	0.1	0.0	0.1	0	93	0	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	97	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	101	0	0.0	0	8.25	0
	433							40		21		0		0

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Estimated Annual Energy Usage - Proposed EMS Improvements

Building: Bigelow Middle School		Proposed	
Unit #: F	Scheduling And Setback Control	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	0.1 kW
12 M - 8 AM	Occupied	50	0	0	25	50	Cooling	0.0 kW
8 AM - 4 PM	Occupied	171	0	0	66	171		
4 PM - 12 AM	Occupied	70	0	0	31	70		
All	Unoccupied	0	0	0	0	0		
Totals		291	0	0	122	291	Total	0.1 kW

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Estimated Annual Energy Usage - Proposed EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Bigelow Middle School
HVAC System: F
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	13.60	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	12.61	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	11.62	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	10.63	0
75 / 79	2	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	9.64	0
70 / 74	9	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	8.65	0
65 / 69	19	0%	0%	100%	0.1	0.0	0.1	2	20	0	0.0	0	8.25	0
60 / 64	30	0%	0%	100%	0.1	0.0	0.1	3	21	0	0.0	0	8.25	0
55 / 59	43	0%	0%	100%	0.1	0.0	0.1	4	22	0	0.0	0	8.25	0
50 / 54	48	14%	0%	100%	0.1	0.0	0.1	5	28	1	0.0	0	8.25	0
45 / 49	50	22%	0%	100%	0.1	0.0	0.1	5	31	1	0.0	0	8.25	0
40 / 44	52	30%	0%	100%	0.1	0.0	0.1	5	34	2	0.0	0	8.25	0
35 / 39	61	38%	0%	100%	0.1	0.0	0.1	6	38	3	0.0	0	8.25	0
30 / 34	69	46%	0%	100%	0.1	0.0	0.1	6	44	4	0.0	0	8.25	0
25 / 29	48	54%	0%	100%	0.1	0.0	0.1	5	51	4	0.0	0	8.25	0
20 / 24	36	62%	0%	100%	0.1	0.0	0.1	3	57	3	0.0	0	8.25	0
15 / 19	24	70%	0%	100%	0.1	0.0	0.1	2	63	2	0.0	0	8.25	0
10 / 14	18	78%	0%	100%	0.1	0.0	0.1	2	70	2	0.0	0	8.25	0
5 / 9	14	86%	0%	100%	0.1	0.0	0.1	1	76	2	0.0	0	8.25	0
0 / 4	8	94%	0%	100%	0.1	0.0	0.1	1	82	1	0.0	0	8.25	0
-5 / -1	3	100%	0%	100%	0.1	0.0	0.1	0	88	0	0.0	0	8.25	0
-10 / -6	2	100%	0%	100%	0.1	0.0	0.1	0	92	0	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	96	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	100	0	0.0	0	8.25	0
	537							50		25		0		0

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Energy Savings Analysis - EMS Improvements

Building: Bigelow Middle School		Existing	Proposed	
Unit #: G	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	40	0	0	26	40	Fans	0.1 kW
8 AM - 4 PM	Occupied	210	0	0	103	210	Cooling	0.0 kW
4 PM - 12 AM	Occupied	101	0	0	58	101	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		351	0	0	187	351		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	50	0	0	31	50	Fans	0.1 kW
8 AM - 4 PM	Occupied	171	0	0	82	171	Cooling	0.0 kW
4 PM - 12 AM	Occupied	70	0	0	39	70	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		291	0	0	152	291		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	-10	0	0	-6	-10	Fans	0.0 kW
8 AM - 4 PM	Occupied	39	0	0	22	39	Cooling	0.0 kW
4 PM - 12 AM	Occupied	31	0	0	18	31	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		60	0	0	34	60		

NORESCO

Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Bigelow Middle School
HVAC System: G
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	####	0
75 / 79	1	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	9.64	0
70 / 74	7	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	8.65	0
65 / 69	16	0%	0%	100%	0.1	0.0	0.1	1	23	0	0.0	0	8.25	0
60 / 64	24	0%	0%	100%	0.1	0.0	0.1	2	25	0	0.0	0	8.25	0
55 / 59	34	0%	0%	100%	0.1	0.0	0.1	3	26	0	0.0	0	8.25	0
50 / 54	39	16%	0%	100%	0.1	0.0	0.1	4	35	1	0.0	0	8.25	0
45 / 49	40	23%	0%	100%	0.1	0.0	0.1	4	40	1	0.0	0	8.25	0
40 / 44	42	31%	0%	100%	0.1	0.0	0.1	4	45	2	0.0	0	8.25	0
35 / 39	49	38%	0%	100%	0.1	0.0	0.1	5	50	3	0.0	0	8.25	0
30 / 34	55	46%	0%	100%	0.1	0.0	0.1	5	57	4	0.0	0	8.25	0
25 / 29	39	53%	0%	100%	0.1	0.0	0.1	4	65	4	0.0	0	8.25	0
20 / 24	29	61%	0%	100%	0.1	0.0	0.1	3	73	3	0.0	0	8.25	0
15 / 19	19	68%	0%	100%	0.1	0.0	0.1	2	81	2	0.0	0	8.25	0
10 / 14	15	76%	0%	100%	0.1	0.0	0.1	1	88	2	0.0	0	8.25	0
5 / 9	11	83%	0%	100%	0.1	0.0	0.1	1	96	2	0.0	0	8.25	0
0 / 4	6	90%	0%	100%	0.1	0.0	0.1	1	104	1	0.0	0	8.25	0
-5 / -1	2	98%	0%	100%	0.1	0.0	0.1	0	111	0	0.0	0	8.25	0
-10 / -6	1	100%	0%	100%	0.1	0.0	0.1	0	117	0	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	121	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	126	0	0.0	0	8.25	0
433					40				26		0		0	

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Estimated Annual Energy Usage - Proposed EMS Improvements

Building: Bigelow Middle School		Proposed	
Unit #: G	Scheduling And Setback Control	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	50	0	0	31	50	Fans	0.1 kW
8 AM - 4 PM	Occupied	171	0	0	82	171	Cooling	0.0 kW
4 PM - 12 AM	Occupied	70	0	0	39	70		
All	Unoccupied	0	0	0	0	0	Total	0.1 kW
Totals		291	0	0	152	291		

NORESCO

Estimated Annual Energy Usage - Proposed EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Bigelow Middle School
HVAC System: G
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	13.60	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	12.61	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	11.62	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	10.63	0
75 / 79	2	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	9.64	0
70 / 74	9	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	8.65	0
65 / 69	19	0%	0%	100%	0.1	0.0	0.1	2	22	0	0.0	0	8.25	0
60 / 64	30	0%	0%	100%	0.1	0.0	0.1	3	23	0	0.0	0	8.25	0
55 / 59	43	0%	0%	100%	0.1	0.0	0.1	4	25	0	0.0	0	8.25	0
50 / 54	48	14%	0%	100%	0.1	0.0	0.1	5	33	1	0.0	0	8.25	0
45 / 49	50	22%	0%	100%	0.1	0.0	0.1	5	38	1	0.0	0	8.25	0
40 / 44	52	30%	0%	100%	0.1	0.0	0.1	5	43	2	0.0	0	8.25	0
35 / 39	61	38%	0%	100%	0.1	0.0	0.1	6	48	3	0.0	0	8.25	0
30 / 34	69	46%	0%	100%	0.1	0.0	0.1	6	56	5	0.0	0	8.25	0
25 / 29	48	54%	0%	100%	0.1	0.0	0.1	5	65	5	0.0	0	8.25	0
20 / 24	36	62%	0%	100%	0.1	0.0	0.1	3	73	4	0.0	0	8.25	0
15 / 19	24	70%	0%	100%	0.1	0.0	0.1	2	81	3	0.0	0	8.25	0
10 / 14	18	78%	0%	100%	0.1	0.0	0.1	2	89	3	0.0	0	8.25	0
5 / 9	14	86%	0%	100%	0.1	0.0	0.1	1	98	2	0.0	0	8.25	0
0 / 4	8	94%	0%	100%	0.1	0.0	0.1	1	106	1	0.0	0	8.25	0
-5 / -1	3	100%	0%	100%	0.1	0.0	0.1	0	114	1	0.0	0	8.25	0
-10 / -6	2	100%	0%	100%	0.1	0.0	0.1	0	118	0	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	123	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	127	0	0.0	0	8.25	0
	537							50		31		0		0

NORESCO

Energy Savings Analysis - EMS Improvements

Building: Bigelow Middle School		Existing	Proposed	
Unit #: H	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	40	0	0	81	40	Fans	0.1 kW
8 AM - 4 PM	Occupied	210	0	0	321	210	Cooling	0.0 kW
4 PM - 12 AM	Occupied	101	0	0	181	101	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		351	0	0	583	351		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	50	0	0	101	50	Fans	0.1 kW
8 AM - 4 PM	Occupied	171	0	0	256	171	Cooling	0.0 kW
4 PM - 12 AM	Occupied	70	0	0	126	70	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		291	0	0	482	291		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	-10	0	0	-20	-10	Fans	0.0 kW
8 AM - 4 PM	Occupied	39	0	0	65	39	Cooling	0.0 kW
4 PM - 12 AM	Occupied	31	0	0	56	31	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		60	0	0	101	60		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Bigelow Middle School
HVAC System: H
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	####	0
75 / 79	1	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	9.64	0
70 / 74	7	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	8.65	0
65 / 69	16	0%	0%	100%	0.1	0.0	0.1	1	65	0	0.0	0	8.25	0
60 / 64	24	0%	0%	100%	0.1	0.0	0.1	2	70	0	0.0	0	8.25	0
55 / 59	34	0%	0%	100%	0.1	0.0	0.1	3	75	1	0.0	0	8.25	0
50 / 54	39	16%	0%	100%	0.1	0.0	0.1	4	106	2	0.0	0	8.25	0
45 / 49	40	23%	0%	100%	0.1	0.0	0.1	4	123	3	0.0	0	8.25	0
40 / 44	42	31%	0%	100%	0.1	0.0	0.1	4	140	5	0.0	0	8.25	0
35 / 39	49	38%	0%	100%	0.1	0.0	0.1	5	157	9	0.0	0	8.25	0
30 / 34	55	46%	0%	100%	0.1	0.0	0.1	5	182	14	0.0	0	8.25	0
25 / 29	39	53%	0%	100%	0.1	0.0	0.1	4	207	12	0.0	0	8.25	0
20 / 24	29	61%	0%	100%	0.1	0.0	0.1	3	232	10	0.0	0	8.25	0
15 / 19	19	68%	0%	100%	0.1	0.0	0.1	2	257	8	0.0	0	8.25	0
10 / 14	15	76%	0%	100%	0.1	0.0	0.1	1	282	6	0.0	0	8.25	0
5 / 9	11	83%	0%	100%	0.1	0.0	0.1	1	307	5	0.0	0	8.25	0
0 / 4	6	90%	0%	100%	0.1	0.0	0.1	1	331	3	0.0	0	8.25	0
-5 / -1	2	98%	0%	100%	0.1	0.0	0.1	0	356	1	0.0	0	8.25	0
-10 / -6	1	100%	0%	100%	0.1	0.0	0.1	0	373	1	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	385	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	398	0	0.0	0	8.25	0
433					40				81		0			

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Estimated Annual Energy Usage - Proposed EMS Improvements

Building: Bigelow Middle School		Proposed	
Unit #: H	Scheduling And Setback Control	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	50	0	0	101	50	Fans	0.1 kW
8 AM - 4 PM	Occupied	171	0	0	256	171	Cooling	0.0 kW
4 PM - 12 AM	Occupied	70	0	0	126	70		
All	Unoccupied	0	0	0	0	0	Total	0.1 kW
Totals		291	0	0	482	291		

NORESCO

Estimated Annual Energy Usage - Proposed EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Bigelow Middle School
HVAC System: H
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton- Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	13.60	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	12.61	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	11.62	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	10.63	0
75 / 79	2	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	9.64	0
70 / 74	9	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	8.65	0
65 / 69	19	0%	0%	100%	0.1	0.0	0.1	2	63	0	0.0	0	8.25	0
60 / 64	30	0%	0%	100%	0.1	0.0	0.1	3	66	0	0.0	0	8.25	0
55 / 59	43	0%	0%	100%	0.1	0.0	0.1	4	70	1	0.0	0	8.25	0
50 / 54	48	14%	0%	100%	0.1	0.0	0.1	5	99	2	0.0	0	8.25	0
45 / 49	50	22%	0%	100%	0.1	0.0	0.1	5	117	4	0.0	0	8.25	0
40 / 44	52	30%	0%	100%	0.1	0.0	0.1	5	135	6	0.0	0	8.25	0
35 / 39	61	38%	0%	100%	0.1	0.0	0.1	6	153	11	0.0	0	8.25	0
30 / 34	69	46%	0%	100%	0.1	0.0	0.1	6	181	17	0.0	0	8.25	0
25 / 29	48	54%	0%	100%	0.1	0.0	0.1	5	208	15	0.0	0	8.25	0
20 / 24	36	62%	0%	100%	0.1	0.0	0.1	3	235	13	0.0	0	8.25	0
15 / 19	24	70%	0%	100%	0.1	0.0	0.1	2	262	10	0.0	0	8.25	0
10 / 14	18	78%	0%	100%	0.1	0.0	0.1	2	289	8	0.0	0	8.25	0
5 / 9	14	86%	0%	100%	0.1	0.0	0.1	1	317	7	0.0	0	8.25	0
0 / 4	8	94%	0%	100%	0.1	0.0	0.1	1	344	4	0.0	0	8.25	0
-5 / -1	3	100%	0%	100%	0.1	0.0	0.1	0	368	2	0.0	0	8.25	0
-10 / -6	2	100%	0%	100%	0.1	0.0	0.1	0	381	1	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	393	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	406	0	0.0	0	8.25	0
537								50		101		0		0

NORESCO

Energy Savings Analysis - EMS Improvements

Building: Bigelow Middle School		Existing	Proposed	
Unit #: I	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	40	0	0	29	40	Fans	0.1 kW
8 AM - 4 PM	Occupied	210	0	0	116	210	Cooling	0.0 kW
4 PM - 12 AM	Occupied	101	0	0	66	101	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		351	0	0	211	351		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	50	0	0	36	50	Fans	0.1 kW
8 AM - 4 PM	Occupied	171	0	0	93	171	Cooling	0.0 kW
4 PM - 12 AM	Occupied	70	0	0	45	70	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		291	0	0	175	291		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	-10	0	0	-7	-10	Fans	0.0 kW
8 AM - 4 PM	Occupied	39	0	0	23	39	Cooling	0.0 kW
4 PM - 12 AM	Occupied	31	0	0	20	31	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		60	0	0	36	60		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Bigelow Middle School
HVAC System: I
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	####	0
75 / 79	1	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	9.64	0
70 / 74	7	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	8.65	0
65 / 69	16	0%	0%	100%	0.1	0.0	0.1	1	24	0	0.0	0	8.25	0
60 / 64	24	0%	0%	100%	0.1	0.0	0.1	2	25	0	0.0	0	8.25	0
55 / 59	34	0%	0%	100%	0.1	0.0	0.1	3	27	0	0.0	0	8.25	0
50 / 54	39	16%	0%	100%	0.1	0.0	0.1	4	38	1	0.0	0	8.25	0
45 / 49	40	23%	0%	100%	0.1	0.0	0.1	4	44	1	0.0	0	8.25	0
40 / 44	42	31%	0%	100%	0.1	0.0	0.1	4	51	2	0.0	0	8.25	0
35 / 39	49	38%	0%	100%	0.1	0.0	0.1	5	57	3	0.0	0	8.25	0
30 / 34	55	46%	0%	100%	0.1	0.0	0.1	5	66	5	0.0	0	8.25	0
25 / 29	39	53%	0%	100%	0.1	0.0	0.1	4	75	4	0.0	0	8.25	0
20 / 24	29	61%	0%	100%	0.1	0.0	0.1	3	84	4	0.0	0	8.25	0
15 / 19	19	68%	0%	100%	0.1	0.0	0.1	2	93	3	0.0	0	8.25	0
10 / 14	15	76%	0%	100%	0.1	0.0	0.1	1	102	2	0.0	0	8.25	0
5 / 9	11	83%	0%	100%	0.1	0.0	0.1	1	111	2	0.0	0	8.25	0
0 / 4	6	90%	0%	100%	0.1	0.0	0.1	1	120	1	0.0	0	8.25	0
-5 / -1	2	98%	0%	100%	0.1	0.0	0.1	0	129	0	0.0	0	8.25	0
-10 / -6	1	100%	0%	100%	0.1	0.0	0.1	0	135	0	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	139	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	144	0	0.0	0	8.25	0
433					40				29		0		0	

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Estimated Annual Energy Usage - Proposed EMS Improvements

Building: Bigelow Middle School		Proposed	
Unit #: I	Scheduling And Setback Control	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	50	0	0	36	50	Fans	0.1 kW
8 AM - 4 PM	Occupied	171	0	0	93	171	Cooling	0.0 kW
4 PM - 12 AM	Occupied	70	0	0	45	70		
All	Unoccupied	0	0	0	0	0	Total	0.1 kW
Totals		291	0	0	175	291		

NORESCO

Estimated Annual Energy Usage - Proposed EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Bigelow Middle School
HVAC System: I
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton- Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	13.60	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	12.61	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	11.62	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	10.63	0
75 / 79	2	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	9.64	0
70 / 74	9	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	8.65	0
65 / 69	19	0%	0%	100%	0.1	0.0	0.1	2	23	0	0.0	0	8.25	0
60 / 64	30	0%	0%	100%	0.1	0.0	0.1	3	24	0	0.0	0	8.25	0
55 / 59	43	0%	0%	100%	0.1	0.0	0.1	4	25	0	0.0	0	8.25	0
50 / 54	48	14%	0%	100%	0.1	0.0	0.1	5	36	1	0.0	0	8.25	0
45 / 49	50	22%	0%	100%	0.1	0.0	0.1	5	42	1	0.0	0	8.25	0
40 / 44	52	30%	0%	100%	0.1	0.0	0.1	5	49	2	0.0	0	8.25	0
35 / 39	61	38%	0%	100%	0.1	0.0	0.1	6	55	4	0.0	0	8.25	0
30 / 34	69	46%	0%	100%	0.1	0.0	0.1	6	65	6	0.0	0	8.25	0
25 / 29	48	54%	0%	100%	0.1	0.0	0.1	5	75	5	0.0	0	8.25	0
20 / 24	36	62%	0%	100%	0.1	0.0	0.1	3	85	5	0.0	0	8.25	0
15 / 19	24	70%	0%	100%	0.1	0.0	0.1	2	95	3	0.0	0	8.25	0
10 / 14	18	78%	0%	100%	0.1	0.0	0.1	2	105	3	0.0	0	8.25	0
5 / 9	14	86%	0%	100%	0.1	0.0	0.1	1	114	2	0.0	0	8.25	0
0 / 4	8	94%	0%	100%	0.1	0.0	0.1	1	124	2	0.0	0	8.25	0
-5 / -1	3	100%	0%	100%	0.1	0.0	0.1	0	133	1	0.0	0	8.25	0
-10 / -6	2	100%	0%	100%	0.1	0.0	0.1	0	138	0	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	142	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	147	0	0.0	0	8.25	0
537								50		36		0		0

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Energy Savings Analysis - EMS Improvements

Building: Bigelow Middle School		Existing	Proposed	
Unit #: J	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	40	0	0	26	40	Fans	0.1 kW
8 AM - 4 PM	Occupied	210	0	0	102	210	Cooling	0.0 kW
4 PM - 12 AM	Occupied	101	0	0	58	101	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		351	0	0	186	351		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	50	0	0	32	50	Fans	0.1 kW
8 AM - 4 PM	Occupied	171	0	0	82	171	Cooling	0.0 kW
4 PM - 12 AM	Occupied	70	0	0	40	70	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		291	0	0	154	291		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	-10	0	0	-6	-10	Fans	0.0 kW
8 AM - 4 PM	Occupied	39	0	0	21	39	Cooling	0.0 kW
4 PM - 12 AM	Occupied	31	0	0	18	31	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		60	0	0	32	60		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Bigelow Middle School
HVAC System: J
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	####	0
75 / 79	1	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	9.64	0
70 / 74	7	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	8.65	0
65 / 69	16	0%	0%	100%	0.1	0.0	0.1	1	21	0	0.0	0	8.25	0
60 / 64	24	0%	0%	100%	0.1	0.0	0.1	2	22	0	0.0	0	8.25	0
55 / 59	34	0%	0%	100%	0.1	0.0	0.1	3	24	0	0.0	0	8.25	0
50 / 54	39	16%	0%	100%	0.1	0.0	0.1	4	34	1	0.0	0	8.25	0
45 / 49	40	23%	0%	100%	0.1	0.0	0.1	4	39	1	0.0	0	8.25	0
40 / 44	42	31%	0%	100%	0.1	0.0	0.1	4	45	2	0.0	0	8.25	0
35 / 39	49	38%	0%	100%	0.1	0.0	0.1	5	50	3	0.0	0	8.25	0
30 / 34	55	46%	0%	100%	0.1	0.0	0.1	5	58	4	0.0	0	8.25	0
25 / 29	39	53%	0%	100%	0.1	0.0	0.1	4	66	4	0.0	0	8.25	0
20 / 24	29	61%	0%	100%	0.1	0.0	0.1	3	74	3	0.0	0	8.25	0
15 / 19	19	68%	0%	100%	0.1	0.0	0.1	2	82	2	0.0	0	8.25	0
10 / 14	15	76%	0%	100%	0.1	0.0	0.1	1	90	2	0.0	0	8.25	0
5 / 9	11	83%	0%	100%	0.1	0.0	0.1	1	98	2	0.0	0	8.25	0
0 / 4	6	90%	0%	100%	0.1	0.0	0.1	1	106	1	0.0	0	8.25	0
-5 / -1	2	98%	0%	100%	0.1	0.0	0.1	0	114	0	0.0	0	8.25	0
-10 / -6	1	100%	0%	100%	0.1	0.0	0.1	0	119	0	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	123	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	127	0	0.0	0	8.25	0
433					40				26		0			

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Estimated Annual Energy Usage - Proposed EMS Improvements

Building: Bigelow Middle School		Proposed	
Unit #: J	Scheduling And Setback Control	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	50	0	0	32	50	Fans	0.1 kW
8 AM - 4 PM	Occupied	171	0	0	82	171	Cooling	0.0 kW
4 PM - 12 AM	Occupied	70	0	0	40	70	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		291	0	0	154	291		

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Estimated Annual Energy Usage - Proposed EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Bigelow Middle School
HVAC System: J
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	13.60	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	12.61	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	11.62	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	10.63	0
75 / 79	2	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	9.64	0
70 / 74	9	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	8.65	0
65 / 69	19	0%	0%	100%	0.1	0.0	0.1	2	20	0	0.0	0	8.25	0
60 / 64	30	0%	0%	100%	0.1	0.0	0.1	3	21	0	0.0	0	8.25	0
55 / 59	43	0%	0%	100%	0.1	0.0	0.1	4	22	0	0.0	0	8.25	0
50 / 54	48	14%	0%	100%	0.1	0.0	0.1	5	32	1	0.0	0	8.25	0
45 / 49	50	22%	0%	100%	0.1	0.0	0.1	5	37	1	0.0	0	8.25	0
40 / 44	52	30%	0%	100%	0.1	0.0	0.1	5	43	2	0.0	0	8.25	0
35 / 39	61	38%	0%	100%	0.1	0.0	0.1	6	49	4	0.0	0	8.25	0
30 / 34	69	46%	0%	100%	0.1	0.0	0.1	6	58	5	0.0	0	8.25	0
25 / 29	48	54%	0%	100%	0.1	0.0	0.1	5	66	5	0.0	0	8.25	0
20 / 24	36	62%	0%	100%	0.1	0.0	0.1	3	75	4	0.0	0	8.25	0
15 / 19	24	70%	0%	100%	0.1	0.0	0.1	2	84	3	0.0	0	8.25	0
10 / 14	18	78%	0%	100%	0.1	0.0	0.1	2	92	3	0.0	0	8.25	0
5 / 9	14	86%	0%	100%	0.1	0.0	0.1	1	101	2	0.0	0	8.25	0
0 / 4	8	94%	0%	100%	0.1	0.0	0.1	1	110	1	0.0	0	8.25	0
-5 / -1	3	100%	0%	100%	0.1	0.0	0.1	0	117	1	0.0	0	8.25	0
-10 / -6	2	100%	0%	100%	0.1	0.0	0.1	0	122	0	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	126	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	130	0	0.0	0	8.25	0
	537							50		32		0		0

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Energy Savings Analysis - EMS Improvements

Building: Bigelow Middle School		Existing	Proposed	
Unit #: K	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	40	0	0	43	40	Fans	0.1 kW
8 AM - 4 PM	Occupied	210	0	0	171	210	Cooling	0.0 kW
4 PM - 12 AM	Occupied	101	0	0	96	101	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		351	0	0	310	351		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	50	0	0	54	50	Fans	0.1 kW
8 AM - 4 PM	Occupied	171	0	0	136	171	Cooling	0.0 kW
4 PM - 12 AM	Occupied	70	0	0	67	70	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		291	0	0	257	291		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	-10	0	0	-10	-10	Fans	0.0 kW
8 AM - 4 PM	Occupied	39	0	0	34	39	Cooling	0.0 kW
4 PM - 12 AM	Occupied	31	0	0	30	31	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		60	0	0	54	60		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Bigelow Middle School
HVAC System: K
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	####	0
75 / 79	1	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	9.64	0
70 / 74	7	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	8.65	0
65 / 69	16	0%	0%	100%	0.1	0.0	0.1	1	35	0	0.0	0	8.25	0
60 / 64	24	0%	0%	100%	0.1	0.0	0.1	2	37	0	0.0	0	8.25	0
55 / 59	34	0%	0%	100%	0.1	0.0	0.1	3	40	0	0.0	0	8.25	0
50 / 54	39	16%	0%	100%	0.1	0.0	0.1	4	56	1	0.0	0	8.25	0
45 / 49	40	23%	0%	100%	0.1	0.0	0.1	4	65	2	0.0	0	8.25	0
40 / 44	42	31%	0%	100%	0.1	0.0	0.1	4	74	3	0.0	0	8.25	0
35 / 39	49	38%	0%	100%	0.1	0.0	0.1	5	83	5	0.0	0	8.25	0
30 / 34	55	46%	0%	100%	0.1	0.0	0.1	5	97	7	0.0	0	8.25	0
25 / 29	39	53%	0%	100%	0.1	0.0	0.1	4	110	6	0.0	0	8.25	0
20 / 24	29	61%	0%	100%	0.1	0.0	0.1	3	123	5	0.0	0	8.25	0
15 / 19	19	68%	0%	100%	0.1	0.0	0.1	2	136	4	0.0	0	8.25	0
10 / 14	15	76%	0%	100%	0.1	0.0	0.1	1	150	3	0.0	0	8.25	0
5 / 9	11	83%	0%	100%	0.1	0.0	0.1	1	163	3	0.0	0	8.25	0
0 / 4	6	90%	0%	100%	0.1	0.0	0.1	1	176	2	0.0	0	8.25	0
-5 / -1	2	98%	0%	100%	0.1	0.0	0.1	0	190	1	0.0	0	8.25	0
-10 / -6	1	100%	0%	100%	0.1	0.0	0.1	0	198	0	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	205	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	212	0	0.0	0	8.25	0
433					40				43		0			

NORESCO

Estimated Annual Energy Usage - Proposed EMS Improvements

Building: Bigelow Middle School		Proposed	
Unit #: K	Scheduling And Setback Control	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	0.1 kW
12 M - 8 AM	Occupied	50	0	0	54	50	Cooling	0.0 kW
8 AM - 4 PM	Occupied	171	0	0	136	171		
4 PM - 12 AM	Occupied	70	0	0	67	70		
All	Unoccupied	0	0	0	0	0		
Totals		291	0	0	257	291	Total	0.1 kW

NORESCO

Estimated Annual Energy Usage - Proposed EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Bigelow Middle School
HVAC System: K
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	13.60	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	12.61	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	11.62	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	10.63	0
75 / 79	2	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	9.64	0
70 / 74	9	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	8.65	0
65 / 69	19	0%	0%	100%	0.1	0.0	0.1	2	33	0	0.0	0	8.25	0
60 / 64	30	0%	0%	100%	0.1	0.0	0.1	3	35	0	0.0	0	8.25	0
55 / 59	43	0%	0%	100%	0.1	0.0	0.1	4	37	0	0.0	0	8.25	0
50 / 54	48	14%	0%	100%	0.1	0.0	0.1	5	53	1	0.0	0	8.25	0
45 / 49	50	22%	0%	100%	0.1	0.0	0.1	5	62	2	0.0	0	8.25	0
40 / 44	52	30%	0%	100%	0.1	0.0	0.1	5	72	3	0.0	0	8.25	0
35 / 39	61	38%	0%	100%	0.1	0.0	0.1	6	82	6	0.0	0	8.25	0
30 / 34	69	46%	0%	100%	0.1	0.0	0.1	6	96	9	0.0	0	8.25	0
25 / 29	48	54%	0%	100%	0.1	0.0	0.1	5	111	8	0.0	0	8.25	0
20 / 24	36	62%	0%	100%	0.1	0.0	0.1	3	125	7	0.0	0	8.25	0
15 / 19	24	70%	0%	100%	0.1	0.0	0.1	2	139	5	0.0	0	8.25	0
10 / 14	18	78%	0%	100%	0.1	0.0	0.1	2	154	4	0.0	0	8.25	0
5 / 9	14	86%	0%	100%	0.1	0.0	0.1	1	168	4	0.0	0	8.25	0
0 / 4	8	94%	0%	100%	0.1	0.0	0.1	1	183	2	0.0	0	8.25	0
-5 / -1	3	100%	0%	100%	0.1	0.0	0.1	0	196	1	0.0	0	8.25	0
-10 / -6	2	100%	0%	100%	0.1	0.0	0.1	0	203	0	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	209	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	216	0	0.0	0	8.25	0
	537							50		54		0		0

NORESCO

Energy Savings Analysis - EMS Improvements

Building: Bigelow Middle School		Existing	Proposed	
Unit #: L	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	40	0	0	14	40	Fans	0.1 kW
8 AM - 4 PM	Occupied	210	0	0	57	210	Cooling	0.0 kW
4 PM - 12 AM	Occupied	101	0	0	31	101	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		351	0	0	102	351		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	50	0	0	17	50	Fans	0.1 kW
8 AM - 4 PM	Occupied	171	0	0	44	171	Cooling	0.0 kW
4 PM - 12 AM	Occupied	70	0	0	21	70	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		291	0	0	82	291		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	-10	0	0	-3	-10	Fans	0.0 kW
8 AM - 4 PM	Occupied	39	0	0	13	39	Cooling	0.0 kW
4 PM - 12 AM	Occupied	31	0	0	10	31	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		60	0	0	20	60		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Bigelow Middle School
HVAC System: L
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	####	0
75 / 79	1	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	9.64	0
70 / 74	7	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	8.65	0
65 / 69	16	0%	0%	100%	0.1	0.0	0.1	1	14	0	0.0	0	8.25	0
60 / 64	24	0%	0%	100%	0.1	0.0	0.1	2	15	0	0.0	0	8.25	0
55 / 59	34	0%	0%	100%	0.1	0.0	0.1	3	16	0	0.0	0	8.25	0
50 / 54	39	16%	0%	100%	0.1	0.0	0.1	4	20	0	0.0	0	8.25	0
45 / 49	40	23%	0%	100%	0.1	0.0	0.1	4	22	1	0.0	0	8.25	0
40 / 44	42	31%	0%	100%	0.1	0.0	0.1	4	24	1	0.0	0	8.25	0
35 / 39	49	38%	0%	100%	0.1	0.0	0.1	5	27	2	0.0	0	8.25	0
30 / 34	55	46%	0%	100%	0.1	0.0	0.1	5	31	2	0.0	0	8.25	0
25 / 29	39	53%	0%	100%	0.1	0.0	0.1	4	35	2	0.0	0	8.25	0
20 / 24	29	61%	0%	100%	0.1	0.0	0.1	3	39	2	0.0	0	8.25	0
15 / 19	19	68%	0%	100%	0.1	0.0	0.1	2	43	1	0.0	0	8.25	0
10 / 14	15	76%	0%	100%	0.1	0.0	0.1	1	47	1	0.0	0	8.25	0
5 / 9	11	83%	0%	100%	0.1	0.0	0.1	1	51	1	0.0	0	8.25	0
0 / 4	6	90%	0%	100%	0.1	0.0	0.1	1	55	1	0.0	0	8.25	0
-5 / -1	2	98%	0%	100%	0.1	0.0	0.1	0	59	0	0.0	0	8.25	0
-10 / -6	1	100%	0%	100%	0.1	0.0	0.1	0	62	0	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	64	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	67	0	0.0	0	8.25	0
433					40				14		0		0	

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Estimated Annual Energy Usage - Proposed EMS Improvements

Building: Bigelow Middle School		Proposed	
Unit #: L	Scheduling And Setback Control	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	50	0	0	17	50	Fans	0.1 kW
8 AM - 4 PM	Occupied	171	0	0	44	171	Cooling	0.0 kW
4 PM - 12 AM	Occupied	70	0	0	21	70		
All	Unoccupied	0	0	0	0	0	Total	0.1 kW
Totals		291	0	0	82	291		

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Estimated Annual Energy Usage - Proposed EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Bigelow Middle School
HVAC System: L
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	13.60	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	12.61	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	11.62	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	10.63	0
75 / 79	2	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	9.64	0
70 / 74	9	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	8.65	0
65 / 69	19	0%	0%	100%	0.1	0.0	0.1	2	13	0	0.0	0	8.25	0
60 / 64	30	0%	0%	100%	0.1	0.0	0.1	3	14	0	0.0	0	8.25	0
55 / 59	43	0%	0%	100%	0.1	0.0	0.1	4	15	0	0.0	0	8.25	0
50 / 54	48	14%	0%	100%	0.1	0.0	0.1	5	18	0	0.0	0	8.25	0
45 / 49	50	22%	0%	100%	0.1	0.0	0.1	5	21	1	0.0	0	8.25	0
40 / 44	52	30%	0%	100%	0.1	0.0	0.1	5	23	1	0.0	0	8.25	0
35 / 39	61	38%	0%	100%	0.1	0.0	0.1	6	25	2	0.0	0	8.25	0
30 / 34	69	46%	0%	100%	0.1	0.0	0.1	6	29	3	0.0	0	8.25	0
25 / 29	48	54%	0%	100%	0.1	0.0	0.1	5	34	2	0.0	0	8.25	0
20 / 24	36	62%	0%	100%	0.1	0.0	0.1	3	38	2	0.0	0	8.25	0
15 / 19	24	70%	0%	100%	0.1	0.0	0.1	2	42	2	0.0	0	8.25	0
10 / 14	18	78%	0%	100%	0.1	0.0	0.1	2	46	1	0.0	0	8.25	0
5 / 9	14	86%	0%	100%	0.1	0.0	0.1	1	51	1	0.0	0	8.25	0
0 / 4	8	94%	0%	100%	0.1	0.0	0.1	1	55	1	0.0	0	8.25	0
-5 / -1	3	100%	0%	100%	0.1	0.0	0.1	0	59	0	0.0	0	8.25	0
-10 / -6	2	100%	0%	100%	0.1	0.0	0.1	0	62	0	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	64	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	67	0	0.0	0	8.25	0
	537							50		17		0		0

NORESCO

Energy Savings Analysis - EMS Improvements

Building: Bigelow Middle School		Existing	Proposed	
Unit #: M	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	40	0	0	34	40	Fans	0.1 kW
8 AM - 4 PM	Occupied	210	0	0	142	210	Cooling	0.0 kW
4 PM - 12 AM	Occupied	101	0	0	78	101	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		351	0	0	254	351		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	50	0	0	41	50	Fans	0.1 kW
8 AM - 4 PM	Occupied	171	0	0	110	171	Cooling	0.0 kW
4 PM - 12 AM	Occupied	70	0	0	52	70	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		291	0	0	204	291		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	-10	0	0	-7	-10	Fans	0.0 kW
8 AM - 4 PM	Occupied	39	0	0	32	39	Cooling	0.0 kW
4 PM - 12 AM	Occupied	31	0	0	26	31	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		60	0	0	50	60		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Bigelow Middle School
HVAC System: M
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	####	0
75 / 79	1	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	9.64	0
70 / 74	7	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	8.65	0
65 / 69	16	0%	0%	100%	0.1	0.0	0.1	1	35	0	0.0	0	8.25	0
60 / 64	24	0%	0%	100%	0.1	0.0	0.1	2	37	0	0.0	0	8.25	0
55 / 59	34	0%	0%	100%	0.1	0.0	0.1	3	40	0	0.0	0	8.25	0
50 / 54	39	16%	0%	100%	0.1	0.0	0.1	4	49	1	0.0	0	8.25	0
45 / 49	40	23%	0%	100%	0.1	0.0	0.1	4	55	1	0.0	0	8.25	0
40 / 44	42	31%	0%	100%	0.1	0.0	0.1	4	61	2	0.0	0	8.25	0
35 / 39	49	38%	0%	100%	0.1	0.0	0.1	5	67	4	0.0	0	8.25	0
30 / 34	55	46%	0%	100%	0.1	0.0	0.1	5	77	6	0.0	0	8.25	0
25 / 29	39	53%	0%	100%	0.1	0.0	0.1	4	87	5	0.0	0	8.25	0
20 / 24	29	61%	0%	100%	0.1	0.0	0.1	3	97	4	0.0	0	8.25	0
15 / 19	19	68%	0%	100%	0.1	0.0	0.1	2	107	3	0.0	0	8.25	0
10 / 14	15	76%	0%	100%	0.1	0.0	0.1	1	117	3	0.0	0	8.25	0
5 / 9	11	83%	0%	100%	0.1	0.0	0.1	1	127	2	0.0	0	8.25	0
0 / 4	6	90%	0%	100%	0.1	0.0	0.1	1	137	1	0.0	0	8.25	0
-5 / -1	2	98%	0%	100%	0.1	0.0	0.1	0	147	1	0.0	0	8.25	0
-10 / -6	1	100%	0%	100%	0.1	0.0	0.1	0	154	0	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	161	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	168	0	0.0	0	8.25	0
433								40		34		0		0

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Estimated Annual Energy Usage - Proposed EMS Improvements

Building: Bigelow Middle School		Proposed	
Unit #: M	Scheduling And Setback Control	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	50	0	0	41	50	Fans	0.1 kW
8 AM - 4 PM	Occupied	171	0	0	110	171	Cooling	0.0 kW
4 PM - 12 AM	Occupied	70	0	0	52	70	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		291	0	0	204	291		

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Estimated Annual Energy Usage - Proposed EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Bigelow Middle School
HVAC System: M
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	13.60	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	12.61	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	11.62	0
80 / 84	0	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	10.63	0
75 / 79	2	0%	0%	100%	0.1	0.0	0.1	0	0	0	0.0	0	9.64	0
70 / 74	9	0%	0%	100%	0.1	0.0	0.1	1	0	0	0.0	0	8.65	0
65 / 69	19	0%	0%	100%	0.1	0.0	0.1	2	33	0	0.0	0	8.25	0
60 / 64	30	0%	0%	100%	0.1	0.0	0.1	3	35	0	0.0	0	8.25	0
55 / 59	43	0%	0%	100%	0.1	0.0	0.1	4	37	0	0.0	0	8.25	0
50 / 54	48	14%	0%	100%	0.1	0.0	0.1	5	46	1	0.0	0	8.25	0
45 / 49	50	22%	0%	100%	0.1	0.0	0.1	5	52	2	0.0	0	8.25	0
40 / 44	52	30%	0%	100%	0.1	0.0	0.1	5	57	3	0.0	0	8.25	0
35 / 39	61	38%	0%	100%	0.1	0.0	0.1	6	63	5	0.0	0	8.25	0
30 / 34	69	46%	0%	100%	0.1	0.0	0.1	6	74	7	0.0	0	8.25	0
25 / 29	48	54%	0%	100%	0.1	0.0	0.1	5	84	6	0.0	0	8.25	0
20 / 24	36	62%	0%	100%	0.1	0.0	0.1	3	95	5	0.0	0	8.25	0
15 / 19	24	70%	0%	100%	0.1	0.0	0.1	2	105	4	0.0	0	8.25	0
10 / 14	18	78%	0%	100%	0.1	0.0	0.1	2	116	3	0.0	0	8.25	0
5 / 9	14	86%	0%	100%	0.1	0.0	0.1	1	127	3	0.0	0	8.25	0
0 / 4	8	94%	0%	100%	0.1	0.0	0.1	1	137	2	0.0	0	8.25	0
-5 / -1	3	100%	0%	100%	0.1	0.0	0.1	0	147	1	0.0	0	8.25	0
-10 / -6	2	100%	0%	100%	0.1	0.0	0.1	0	154	0	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.1	0.0	0.1	0	161	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.1	0.0	0.1	0	167	0	0.0	0	8.25	0
	537							50		41		0		0

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Energy Savings Analysis - EMS Improvements

Building: Bigelow Middle School		Existing	Proposed	
Unit #: ALL (24)	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Classrooms/Office	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: FCU	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	371	0	0	51	371	Fans	0.9 kW
8 AM - 4 PM	Occupied	1,928	0	0	164	1,928	Cooling	0.0 kW
4 PM - 12 AM	Occupied	928	0	0	109	928		
All	Unoccupied	0	0	0	0	0	Total	0.9 kW
Totals		3,227	0	0	323	3,227		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	460	0	0	71	460	Fans	0.9 kW
8 AM - 4 PM	Occupied	1,572	0	0	148	1,572	Cooling	0.0 kW
4 PM - 12 AM	Occupied	646	0	0	85	646		
All	Unoccupied	0	0	0	0	0	Total	0.9 kW
Totals		2,678	0	0	304	2,678		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	-89	0	0	-20	-89	Fans	0.0 kW
8 AM - 4 PM	Occupied	356	0	0	16	356	Cooling	0.0 kW
4 PM - 12 AM	Occupied	282	0	0	24	282		
All	Unoccupied	0	0	0	0	0	Total	0.0 kW
Totals		549	0	0	20	549		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Bigelow Middle School
HVAC System: ALL (24)
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
80 / 84	0	0%	0%	100%	0.9	0.0	0.9	0	0	0	0.0	0	####	0
75 / 79	1	0%	0%	100%	0.9	0.0	0.9	1	0	0	0.0	0	9.64	0
70 / 74	7	0%	0%	100%	0.9	0.0	0.9	6	0	0	0.0	0	8.65	0
65 / 69	16	0%	0%	100%	0.9	0.0	0.9	13	0	0	0.0	0	8.25	0
60 / 64	24	0%	0%	100%	0.9	0.0	0.9	21	0	0	0.0	0	8.25	0
55 / 59	34	0%	0%	100%	0.9	0.0	0.9	30	0	0	0.0	0	8.25	0
50 / 54	39	16%	0%	100%	0.9	0.0	0.9	33	40	1	0.0	0	8.25	0
45 / 49	40	23%	0%	100%	0.9	0.0	0.9	34	59	1	0.0	0	8.25	0
40 / 44	42	31%	0%	100%	0.9	0.0	0.9	36	77	3	0.0	0	8.25	0
35 / 39	49	38%	0%	100%	0.9	0.0	0.9	42	96	6	0.0	0	8.25	0
30 / 34	55	46%	0%	100%	0.9	0.0	0.9	47	115	9	0.0	0	8.25	0
25 / 29	39	53%	0%	100%	0.9	0.0	0.9	34	134	8	0.0	0	8.25	0
20 / 24	29	61%	0%	100%	0.9	0.0	0.9	25	152	7	0.0	0	8.25	0
15 / 19	19	68%	0%	100%	0.9	0.0	0.9	17	171	5	0.0	0	8.25	0
10 / 14	15	76%	0%	100%	0.9	0.0	0.9	13	190	4	0.0	0	8.25	0
5 / 9	11	83%	0%	100%	0.9	0.0	0.9	10	209	4	0.0	0	8.25	0
0 / 4	6	90%	0%	100%	0.9	0.0	0.9	6	228	2	0.0	0	8.25	0
-5 / -1	2	98%	0%	100%	0.9	0.0	0.9	2	246	1	0.0	0	8.25	0
-10 / -6	1	100%	0%	100%	0.9	0.0	0.9	1	252	0	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.9	0.0	0.9	0	252	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.9	0.0	0.9	0	252	0	0.0	0	8.25	0
433					371				51		0		0	

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Estimated Annual Energy Usage - Proposed EMS Improvements

Building: Bigelow Middle School		Proposed	
Unit #: ALL (24)	Scheduling And Setback Control	Y	Y = Included, N = Not Included
Area Served: Classrooms/Office	Supply And Return Fan VFD's	N	Y = Included, N = Not Included
System Type: FCU	Demand-Controlled Ventilation	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	0.9 kW
12 M - 8 AM	Occupied	460	0	0	71	460	Cooling	0.0 kW
8 AM - 4 PM	Occupied	1,572	0	0	148	1,572	Total	0.9 kW
4 PM - 12 AM	Occupied	646	0	0	85	646		
All	Unoccupied	0	0	0	0	0		
Totals		2,678	0	0	304	2,678		

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Estimated Annual Energy Usage - Proposed EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Bigelow Middle School
HVAC System: ALL (24)
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	13.60	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	12.61	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	11.62	0
80 / 84	0	0%	0%	100%	0.9	0.0	0.9	0	0	0	0.0	0	10.63	0
75 / 79	2	0%	0%	100%	0.9	0.0	0.9	1	0	0	0.0	0	9.64	0
70 / 74	9	0%	0%	100%	0.9	0.0	0.9	8	0	0	0.0	0	8.65	0
65 / 69	19	0%	0%	100%	0.9	0.0	0.9	17	0	0	0.0	0	8.25	0
60 / 64	30	0%	0%	100%	0.9	0.0	0.9	26	0	0	0.0	0	8.25	0
55 / 59	43	0%	0%	100%	0.9	0.0	0.9	37	0	0	0.0	0	8.25	0
50 / 54	48	14%	0%	100%	0.9	0.0	0.9	41	40	1	0.0	0	8.25	0
45 / 49	50	22%	0%	100%	0.9	0.0	0.9	43	62	2	0.0	0	8.25	0
40 / 44	52	30%	0%	100%	0.9	0.0	0.9	45	84	4	0.0	0	8.25	0
35 / 39	61	38%	0%	100%	0.9	0.0	0.9	52	106	8	0.0	0	8.25	0
30 / 34	69	46%	0%	100%	0.9	0.0	0.9	59	129	12	0.0	0	8.25	0
25 / 29	48	54%	0%	100%	0.9	0.0	0.9	42	151	11	0.0	0	8.25	0
20 / 24	36	62%	0%	100%	0.9	0.0	0.9	31	173	9	0.0	0	8.25	0
15 / 19	24	70%	0%	100%	0.9	0.0	0.9	21	195	7	0.0	0	8.25	0
10 / 14	18	78%	0%	100%	0.9	0.0	0.9	16	217	6	0.0	0	8.25	0
5 / 9	14	86%	0%	100%	0.9	0.0	0.9	12	240	5	0.0	0	8.25	0
0 / 4	8	94%	0%	100%	0.9	0.0	0.9	7	262	3	0.0	0	8.25	0
-5 / -1	3	100%	0%	100%	0.9	0.0	0.9	2	280	1	0.0	0	8.25	0
-10 / -6	2	100%	0%	100%	0.9	0.0	0.9	1	280	1	0.0	0	8.25	0
-15 / -11	1	100%	0%	100%	0.9	0.0	0.9	1	280	0	0.0	0	8.25	0
-20 / -16	0	100%	0%	100%	0.9	0.0	0.9	0	280	0	0.0	0	8.25	0
	537							460		71		0		0

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Brown Middle School - Savings Summary

EMS Improvements

Unit #	Quantity	kWk Supply And Return Fans			kWh Cooling			Heating			kWh Unit Total		
		kWh Existing Unit	kWh Proposed Unit	Annual kWh Saved	kWh Existing Unit	kWh Proposed Unit	Annual kWh Saved	MMBTU Existing Unit	MMBTU Proposed Unit	Annual MMBTU Saved	kWh Existing Unit	kWh Proposed Unit	Annual kWh Saved
UVs	56	27,704	21,737	5,966	0	0	0	7,306	5,616	1,690	27,704	21,737	5,966
HV-1,2	1	8,905	6,987	1,918	0	0	0	1,035	796	240	8,905	6,987	1,918
HV-3	1	2,968	2,329	639	0	0	0	518	398	120	2,968	2,329	639
HV-4,5	1	5,937	4,658	1,279	0	0	0	1,035	796	240	5,937	4,658	1,279
HV-6	1	2,968	2,329	639	0	0	0	518	398	120	2,968	2,329	639
HV-7	1	27,704	21,737	5,966	0	0	0	1,035	796	240	27,704	21,737	5,966
HV-9	1	2,968	2,329	639	0	0	0	518	398	120	2,968	2,329	639
HV-10	1	2,226	1,747	479	0	0	0	259	199	60	2,226	1,747	479
HV-11	1	14,841	11,645	3,196	0	0	0	1,243	955	287	14,841	11,645	3,196
				0			0			0	0	0	0
				0			0			0	0	0	0
				0			0			0	0	0	0
				0			0			0	0	0	0
				0			0			0	0	0	0
				0			0			0	0	0	0
				0			0			0	0	0	0
				0			0			0	0	0	0
Total		45,513	35,711	9,802	0	0	0	9,895	7,606	2,289	45,513	35,711	9,802

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Energy Savings Analysis - EMS Improvements

Building: Brown Middle School		Existing	Proposed	
Unit #: UV	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vents	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	7.0 kW
12 M - 8 AM	Occupied	4,218	0	0	1,365	4,218	Cooling	0.0 kW
8 AM - 4 PM	Occupied	13,239	0	0	3,025	13,239	Total	7.0 kW
4 PM - 12 AM	Occupied	10,247	0	0	2,917	10,247		
All	Unoccupied	0	0	0	0	0		
Totals		27,704	0	0	7,306	27,704		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	7.0 kW
12 M - 8 AM	Occupied	3,736	0	0	1,209	3,736	Cooling	0.0 kW
8 AM - 4 PM	Occupied	12,758	0	0	2,915	12,758	Total	7.0 kW
4 PM - 12 AM	Occupied	5,244	0	0	1,493	5,244		
All	Unoccupied	0	0	0	0	0		
Totals		21,737	0	0	5,616	21,737		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	0.0 kW
12 M - 8 AM	Occupied	482	0	0	156	482	Cooling	0.0 kW
8 AM - 4 PM	Occupied	481	0	0	110	481	Total	0.0 kW
4 PM - 12 AM	Occupied	5,003	0	0	1,424	5,003		
All	Unoccupied	0	0	0	0	0		
Totals		5,966	0	0	1,690	5,966		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Brown Middle School
HVAC System: UV
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period 12 AM To 8 AM System Hours	Heating Hours	Cooling Hours	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
							Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
95 / 99	0	0	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	0	0	0	0%	0%	100%	7.0	0.0	7.0	2	0	0	0.0	0	0.00	0
75 / 79	2	0	0	0%	0%	100%	7.0	0.0	7.0	12	0	0	0.0	0	0.00	0
70 / 74	10	0	0	0%	0%	100%	7.0	0.0	7.0	70	0	0	0.0	0	0.00	0
65 / 69	22	1	0	0%	0%	100%	7.0	0.0	7.0	153	377	0	0.0	0	0.00	0
60 / 64	34	5	0	0%	0%	100%	7.0	0.0	7.0	237	398	3	0.0	0	0.00	0
55 / 59	48	10	0	11%	0%	100%	7.0	0.0	7.0	336	724	12	0.0	0	0.00	0
50 / 54	55	18	0	19%	0%	100%	7.0	0.0	7.0	379	963	29	0.0	0	0.00	0
45 / 49	56	25	0	27%	0%	100%	7.0	0.0	7.0	392	1,201	50	0.0	0	0.00	0
40 / 44	59	37	0	35%	0%	100%	7.0	0.0	7.0	411	1,440	88	0.0	0	0.00	0
35 / 39	69	55	0	43%	0%	100%	7.0	0.0	7.0	477	1,679	155	0.0	0	0.00	0
30 / 34	78	71	0	51%	0%	100%	7.0	0.0	7.0	540	1,973	233	0.0	0	0.00	0
25 / 29	55	53	0	59%	0%	100%	7.0	0.0	7.0	381	2,267	200	0.0	0	0.00	0
20 / 24	40	40	0	67%	0%	100%	7.0	0.0	7.0	280	2,560	170	0.0	0	0.00	0
15 / 19	27	27	0	75%	0%	100%	7.0	0.0	7.0	188	2,854	128	0.0	0	0.00	0
10 / 14	21	21	0	83%	0%	100%	7.0	0.0	7.0	144	3,148	109	0.0	0	0.00	0
5 / 9	16	16	0	90%	0%	100%	7.0	0.0	7.0	111	3,442	92	0.0	0	0.00	0
0 / 4	9	9	0	98%	0%	100%	7.0	0.0	7.0	63	3,736	56	0.0	0	0.00	0
-5 / -1	3	3	0	100%	0%	100%	7.0	0.0	7.0	23	3,856	21	0.0	0	0.00	0
-10 / -6	2	2	0	100%	0%	100%	7.0	0.0	7.0	12	3,932	11	0.0	0	0.00	0
-15 / -11	1	1	0	100%	0%	100%	7.0	0.0	7.0	5	4,008	5	0.0	0	0.00	0
-20 / -16	0	0	0	100%	0%	100%	7.0	0.0	7.0	2	4,085	2	0.0	0	0.00	0
606		393	0							4,218		1,365		0		0

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Estimated Annual Energy Usage - EMS Improvements

Building: Brown Middle School		Proposed	
Unit #: UV	Scheduling And Setback Control	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	Y = Included, N = Not Included
System Type: Unit Vents	Demand-Controlled Ventilation	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	3,736	0	0	1,209	3,736	Fans	7.0 kW
8 AM - 4 PM	Occupied	12,758	0	0	2,915	12,758	Cooling	0.0 kW
4 PM - 12 AM	Occupied	5,244	0	0	1,493	5,244	Total	7.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		21,737	0	0	5,616	21,737		

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Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Brown Middle School
HVAC System: UV
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton- Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	0	0%	0%	100%	7.0	0.0	7.0	2	0	0	0.0	0	0.00	0
75 / 79	2	0%	0%	100%	7.0	0.0	7.0	11	0	0	0.0	0	0.00	0
70 / 74	9	0%	0%	100%	7.0	0.0	7.0	62	0	0	0.0	0	0.00	0
65 / 69	19	0%	0%	100%	7.0	0.0	7.0	136	377	0	0.0	0	0.00	0
60 / 64	30	0%	0%	100%	7.0	0.0	7.0	210	398	3	0.0	0	0.00	0
55 / 59	43	11%	0%	100%	7.0	0.0	7.0	298	724	11	0.0	0	0.00	0
50 / 54	48	19%	0%	100%	7.0	0.0	7.0	336	963	25	0.0	0	0.00	0
45 / 49	50	27%	0%	100%	7.0	0.0	7.0	347	1,201	44	0.0	0	0.00	0
40 / 44	52	35%	0%	100%	7.0	0.0	7.0	364	1,440	78	0.0	0	0.00	0
35 / 39	61	43%	0%	100%	7.0	0.0	7.0	422	1,679	137	0.0	0	0.00	0
30 / 34	69	51%	0%	100%	7.0	0.0	7.0	478	1,973	207	0.0	0	0.00	0
25 / 29	48	59%	0%	100%	7.0	0.0	7.0	338	2,267	177	0.0	0	0.00	0
20 / 24	36	67%	0%	100%	7.0	0.0	7.0	248	2,560	151	0.0	0	0.00	0
15 / 19	24	75%	0%	100%	7.0	0.0	7.0	167	2,854	114	0.0	0	0.00	0
10 / 14	18	83%	0%	100%	7.0	0.0	7.0	128	3,148	96	0.0	0	0.00	0
5 / 9	14	90%	0%	100%	7.0	0.0	7.0	99	3,442	81	0.0	0	0.00	0
0 / 4	8	98%	0%	100%	7.0	0.0	7.0	56	3,736	50	0.0	0	0.00	0
-5 / -1	3	100%	0%	100%	7.0	0.0	7.0	20	3,856	18	0.0	0	0.00	0
-10 / -6	2	100%	0%	100%	7.0	0.0	7.0	11	3,932	10	0.0	0	0.00	0
-15 / -11	1	100%	0%	100%	7.0	0.0	7.0	5	4,008	4	0.0	0	0.00	0
-20 / -16	0	100%	0%	100%	7.0	0.0	7.0	2	4,085	2	0.0	0	0.00	0
	537							3,736		1,209		0		0

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Energy Savings Analysis - EMS Improvements

Building: Brown Middle School		Existing	Proposed	
Unit #: H&V-1 & 2	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Girl's Gym	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: H&V	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	1,356	0	0	193	1,356	Fans	2.2 kW
8 AM - 4 PM	Occupied	4,255	0	0	429	4,255	Cooling	0.0 kW
4 PM - 12 AM	Occupied	3,294	0	0	413	3,294	Total	2.2 kW
All	Unoccupied	0	0	0	0	0		
Totals		8,905	0	0	1,035	8,905		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	1,201	0	0	171	1,201	Fans	2.2 kW
8 AM - 4 PM	Occupied	4,101	0	0	413	4,101	Cooling	0.0 kW
4 PM - 12 AM	Occupied	1,686	0	0	212	1,686	Total	2.2 kW
All	Unoccupied	0	0	0	0	0		
Totals		6,987	0	0	796	6,987		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	155	0	0	22	155	Fans	0.0 kW
8 AM - 4 PM	Occupied	155	0	0	16	155	Cooling	0.0 kW
4 PM - 12 AM	Occupied	1,608	0	0	202	1,608	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		1,918	0	0	240	1,918		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Brown Middle School
HVAC System: H&V-1 & 2
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	0	0%	0%	100%	2.2	0.0	2.2	1	0	0	0.0	0	0.00	0
75 / 79	2	0%	0%	100%	2.2	0.0	2.2	4	0	0	0.0	0	0.00	0
70 / 74	10	0%	0%	100%	2.2	0.0	2.2	22	0	0	0.0	0	0.00	0
65 / 69	22	0%	0%	100%	2.2	0.0	2.2	49	53	0	0.0	0	0.00	0
60 / 64	34	0%	0%	100%	2.2	0.0	2.2	76	56	0	0.0	0	0.00	0
55 / 59	48	11%	0%	100%	2.2	0.0	2.2	108	103	2	0.0	0	0.00	0
50 / 54	55	19%	0%	100%	2.2	0.0	2.2	122	136	4	0.0	0	0.00	0
45 / 49	56	27%	0%	100%	2.2	0.0	2.2	126	170	7	0.0	0	0.00	0
40 / 44	59	35%	0%	100%	2.2	0.0	2.2	132	204	13	0.0	0	0.00	0
35 / 39	69	43%	0%	100%	2.2	0.0	2.2	153	238	22	0.0	0	0.00	0
30 / 34	78	51%	0%	100%	2.2	0.0	2.2	173	280	33	0.0	0	0.00	0
25 / 29	55	59%	0%	100%	2.2	0.0	2.2	123	321	28	0.0	0	0.00	0
20 / 24	40	67%	0%	100%	2.2	0.0	2.2	90	363	24	0.0	0	0.00	0
15 / 19	27	75%	0%	100%	2.2	0.0	2.2	60	405	18	0.0	0	0.00	0
10 / 14	21	83%	0%	100%	2.2	0.0	2.2	46	446	15	0.0	0	0.00	0
5 / 9	16	90%	0%	100%	2.2	0.0	2.2	36	488	13	0.0	0	0.00	0
0 / 4	9	98%	0%	100%	2.2	0.0	2.2	20	530	8	0.0	0	0.00	0
-5 / -1	3	100%	0%	100%	2.2	0.0	2.2	7	546	3	0.0	0	0.00	0
-10 / -6	2	100%	0%	100%	2.2	0.0	2.2	4	557	2	0.0	0	0.00	0
-15 / -11	1	100%	0%	100%	2.2	0.0	2.2	2	568	1	0.0	0	0.00	0
-20 / -16	0	100%	0%	100%	2.2	0.0	2.2	1	579	0	0.0	0	0.00	0
606					1,356				193		0			

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Estimated Annual Energy Usage - EMS Improvements

Building: Brown Middle School		Proposed	
Unit #: H&V-1 & 2	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Girl's Gym	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: H&V	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	1.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	1,201	0	0	171	1,201		Fans 2.2 kW
8 AM - 4 PM	Occupied	4,101	0	0	413	4,101		Cooling 0.0 kW
4 PM - 12 AM	Occupied	1,686	0	0	212	1,686		
All	Unoccupied	0	0	0	0	0		
Totals		6,987	0	0	796	6,987		Total 2.2 kW

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Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Brown Middle School
HVAC System: H&V-1 & 2
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	0	0%	0%	100%	2.2	0.0	2.2	0	0	0	0.0	0	0.00	0
75 / 79	2	0%	0%	100%	2.2	0.0	2.2	3	0	0	0.0	0	0.00	0
70 / 74	9	0%	0%	100%	2.2	0.0	2.2	20	0	0	0.0	0	0.00	0
65 / 69	19	0%	0%	100%	2.2	0.0	2.2	44	53	0	0.0	0	0.00	0
60 / 64	30	0%	0%	100%	2.2	0.0	2.2	67	56	0	0.0	0	0.00	0
55 / 59	43	11%	0%	100%	2.2	0.0	2.2	96	103	2	0.0	0	0.00	0
50 / 54	48	19%	0%	100%	2.2	0.0	2.2	108	136	4	0.0	0	0.00	0
45 / 49	50	27%	0%	100%	2.2	0.0	2.2	112	170	6	0.0	0	0.00	0
40 / 44	52	35%	0%	100%	2.2	0.0	2.2	117	204	11	0.0	0	0.00	0
35 / 39	61	43%	0%	100%	2.2	0.0	2.2	136	238	19	0.0	0	0.00	0
30 / 34	69	51%	0%	100%	2.2	0.0	2.2	154	280	29	0.0	0	0.00	0
25 / 29	48	59%	0%	100%	2.2	0.0	2.2	109	321	25	0.0	0	0.00	0
20 / 24	36	67%	0%	100%	2.2	0.0	2.2	80	363	21	0.0	0	0.00	0
15 / 19	24	75%	0%	100%	2.2	0.0	2.2	54	405	16	0.0	0	0.00	0
10 / 14	18	83%	0%	100%	2.2	0.0	2.2	41	446	14	0.0	0	0.00	0
5 / 9	14	90%	0%	100%	2.2	0.0	2.2	32	488	12	0.0	0	0.00	0
0 / 4	8	98%	0%	100%	2.2	0.0	2.2	18	530	7	0.0	0	0.00	0
-5 / -1	3	100%	0%	100%	2.2	0.0	2.2	6	546	3	0.0	0	0.00	0
-10 / -6	2	100%	0%	100%	2.2	0.0	2.2	3	557	1	0.0	0	0.00	0
-15 / -11	1	100%	0%	100%	2.2	0.0	2.2	1	568	1	0.0	0	0.00	0
-20 / -16	0	100%	0%	100%	2.2	0.0	2.2	0	579	0	0.0	0	0.00	0
537					1,201				171		0			

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Energy Savings Analysis - EMS Improvements

Building: Brown Middle School		Existing	Proposed	
Unit #: H&V-3	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Girl's Locker Room	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: H&V	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	452	0	0	97	452	Fans	0.7 kW
8 AM - 4 PM	Occupied	1,418	0	0	214	1,418	Cooling	0.0 kW
4 PM - 12 AM	Occupied	1,098	0	0	207	1,098	Total	0.7 kW
All	Unoccupied	0	0	0	0	0		
Totals		2,968	0	0	518	2,968		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	400	0	0	86	400	Fans	0.7 kW
8 AM - 4 PM	Occupied	1,367	0	0	207	1,367	Cooling	0.0 kW
4 PM - 12 AM	Occupied	562	0	0	106	562	Total	0.7 kW
All	Unoccupied	0	0	0	0	0		
Totals		2,329	0	0	398	2,329		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	52	0	0	11	52	Fans	0.0 kW
8 AM - 4 PM	Occupied	52	0	0	8	52	Cooling	0.0 kW
4 PM - 12 AM	Occupied	536	0	0	101	536	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		639	0	0	120	639		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Brown Middle School
HVAC System: H&V-3
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	0	0%	0%	100%	0.7	0.0	0.7	0	0	0	0.0	0	0.00	0
75 / 79	2	0%	0%	100%	0.7	0.0	0.7	1	0	0	0.0	0	0.00	0
70 / 74	10	0%	0%	100%	0.7	0.0	0.7	7	0	0	0.0	0	0.00	0
65 / 69	22	0%	0%	100%	0.7	0.0	0.7	16	27	0	0.0	0	0.00	0
60 / 64	34	0%	0%	100%	0.7	0.0	0.7	25	28	0	0.0	0	0.00	0
55 / 59	48	11%	0%	100%	0.7	0.0	0.7	36	51	1	0.0	0	0.00	0
50 / 54	55	19%	0%	100%	0.7	0.0	0.7	41	68	2	0.0	0	0.00	0
45 / 49	56	27%	0%	100%	0.7	0.0	0.7	42	85	4	0.0	0	0.00	0
40 / 44	59	35%	0%	100%	0.7	0.0	0.7	44	102	6	0.0	0	0.00	0
35 / 39	69	43%	0%	100%	0.7	0.0	0.7	51	119	11	0.0	0	0.00	0
30 / 34	78	51%	0%	100%	0.7	0.0	0.7	58	140	17	0.0	0	0.00	0
25 / 29	55	59%	0%	100%	0.7	0.0	0.7	41	161	14	0.0	0	0.00	0
20 / 24	40	67%	0%	100%	0.7	0.0	0.7	30	181	12	0.0	0	0.00	0
15 / 19	27	75%	0%	100%	0.7	0.0	0.7	20	202	9	0.0	0	0.00	0
10 / 14	21	83%	0%	100%	0.7	0.0	0.7	15	223	8	0.0	0	0.00	0
5 / 9	16	90%	0%	100%	0.7	0.0	0.7	12	244	7	0.0	0	0.00	0
0 / 4	9	98%	0%	100%	0.7	0.0	0.7	7	265	4	0.0	0	0.00	0
-5 / -1	3	100%	0%	100%	0.7	0.0	0.7	2	273	1	0.0	0	0.00	0
-10 / -6	2	100%	0%	100%	0.7	0.0	0.7	1	279	1	0.0	0	0.00	0
-15 / -11	1	100%	0%	100%	0.7	0.0	0.7	1	284	0	0.0	0	0.00	0
-20 / -16	0	100%	0%	100%	0.7	0.0	0.7	0	289	0	0.0	0	0.00	0
606					452				97		0			

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Estimated Annual Energy Usage - EMS Improvements

Building: Brown Middle School		Proposed	
Unit #: H&V-3	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Girl's Locker Room	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: H&V	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	1.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	0.7 kW
12 M - 8 AM	Occupied	400	0	0	86	400	Cooling	0.0 kW
8 AM - 4 PM	Occupied	1,367	0	0	207	1,367	Total	0.7 kW
4 PM - 12 AM	Occupied	562	0	0	106	562		
All	Unoccupied	0	0	0	0	0		
Totals		2,329	0	0	398	2,329		

NORESCO

Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Brown Middle School
HVAC System: H&V-3
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	0	0%	0%	100%	0.7	0.0	0.7	0	0	0	0.0	0	0.00	0
75 / 79	2	0%	0%	100%	0.7	0.0	0.7	1	0	0	0.0	0	0.00	0
70 / 74	9	0%	0%	100%	0.7	0.0	0.7	7	0	0	0.0	0	0.00	0
65 / 69	19	0%	0%	100%	0.7	0.0	0.7	15	27	0	0.0	0	0.00	0
60 / 64	30	0%	0%	100%	0.7	0.0	0.7	22	28	0	0.0	0	0.00	0
55 / 59	43	11%	0%	100%	0.7	0.0	0.7	32	51	1	0.0	0	0.00	0
50 / 54	48	19%	0%	100%	0.7	0.0	0.7	36	68	2	0.0	0	0.00	0
45 / 49	50	27%	0%	100%	0.7	0.0	0.7	37	85	3	0.0	0	0.00	0
40 / 44	52	35%	0%	100%	0.7	0.0	0.7	39	102	6	0.0	0	0.00	0
35 / 39	61	43%	0%	100%	0.7	0.0	0.7	45	119	10	0.0	0	0.00	0
30 / 34	69	51%	0%	100%	0.7	0.0	0.7	51	140	15	0.0	0	0.00	0
25 / 29	48	59%	0%	100%	0.7	0.0	0.7	36	161	13	0.0	0	0.00	0
20 / 24	36	67%	0%	100%	0.7	0.0	0.7	27	181	11	0.0	0	0.00	0
15 / 19	24	75%	0%	100%	0.7	0.0	0.7	18	202	8	0.0	0	0.00	0
10 / 14	18	83%	0%	100%	0.7	0.0	0.7	14	223	7	0.0	0	0.00	0
5 / 9	14	90%	0%	100%	0.7	0.0	0.7	11	244	6	0.0	0	0.00	0
0 / 4	8	98%	0%	100%	0.7	0.0	0.7	6	265	4	0.0	0	0.00	0
-5 / -1	3	100%	0%	100%	0.7	0.0	0.7	2	273	1	0.0	0	0.00	0
-10 / -6	2	100%	0%	100%	0.7	0.0	0.7	1	279	1	0.0	0	0.00	0
-15 / -11	1	100%	0%	100%	0.7	0.0	0.7	0	284	0	0.0	0	0.00	0
-20 / -16	0	100%	0%	100%	0.7	0.0	0.7	0	289	0	0.0	0	0.00	0
	537							400		86		0		0

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Energy Savings Analysis - EMS Improvements

Building: Brown Middle School		Existing	Proposed	
Unit #: H&V-4 & 5	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Boy's Gym	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: H&V	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	904	0	0	193	904	Fans	1.5 kW
8 AM - 4 PM	Occupied	2,837	0	0	429	2,837	Cooling	0.0 kW
4 PM - 12 AM	Occupied	2,196	0	0	413	2,196	Total	1.5 kW
All	Unoccupied	0	0	0	0	0		
Totals		5,937	0	0	1,035	5,937		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	800	0	0	171	800	Fans	1.5 kW
8 AM - 4 PM	Occupied	2,734	0	0	413	2,734	Cooling	0.0 kW
4 PM - 12 AM	Occupied	1,124	0	0	212	1,124	Total	1.5 kW
All	Unoccupied	0	0	0	0	0		
Totals		4,658	0	0	796	4,658		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	103	0	0	22	103	Fans	0.0 kW
8 AM - 4 PM	Occupied	103	0	0	16	103	Cooling	0.0 kW
4 PM - 12 AM	Occupied	1,072	0	0	202	1,072	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		1,279	0	0	240	1,279		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Brown Middle School
HVAC System: H&V-4 & 5
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	0	0%	0%	100%	1.5	0.0	1.5	0	0	0	0.0	0	0.00	0
75 / 79	2	0%	0%	100%	1.5	0.0	1.5	3	0	0	0.0	0	0.00	0
70 / 74	10	0%	0%	100%	1.5	0.0	1.5	15	0	0	0.0	0	0.00	0
65 / 69	22	0%	0%	100%	1.5	0.0	1.5	33	53	0	0.0	0	0.00	0
60 / 64	34	0%	0%	100%	1.5	0.0	1.5	51	56	0	0.0	0	0.00	0
55 / 59	48	11%	0%	100%	1.5	0.0	1.5	72	103	2	0.0	0	0.00	0
50 / 54	55	19%	0%	100%	1.5	0.0	1.5	81	136	4	0.0	0	0.00	0
45 / 49	56	27%	0%	100%	1.5	0.0	1.5	84	170	7	0.0	0	0.00	0
40 / 44	59	35%	0%	100%	1.5	0.0	1.5	88	204	13	0.0	0	0.00	0
35 / 39	69	43%	0%	100%	1.5	0.0	1.5	102	238	22	0.0	0	0.00	0
30 / 34	78	51%	0%	100%	1.5	0.0	1.5	116	280	33	0.0	0	0.00	0
25 / 29	55	59%	0%	100%	1.5	0.0	1.5	82	321	28	0.0	0	0.00	0
20 / 24	40	67%	0%	100%	1.5	0.0	1.5	60	363	24	0.0	0	0.00	0
15 / 19	27	75%	0%	100%	1.5	0.0	1.5	40	405	18	0.0	0	0.00	0
10 / 14	21	83%	0%	100%	1.5	0.0	1.5	31	446	15	0.0	0	0.00	0
5 / 9	16	90%	0%	100%	1.5	0.0	1.5	24	488	13	0.0	0	0.00	0
0 / 4	9	98%	0%	100%	1.5	0.0	1.5	13	530	8	0.0	0	0.00	0
-5 / -1	3	100%	0%	100%	1.5	0.0	1.5	5	546	3	0.0	0	0.00	0
-10 / -6	2	100%	0%	100%	1.5	0.0	1.5	3	557	2	0.0	0	0.00	0
-15 / -11	1	100%	0%	100%	1.5	0.0	1.5	1	568	1	0.0	0	0.00	0
-20 / -16	0	100%	0%	100%	1.5	0.0	1.5	0	579	0	0.0	0	0.00	0
	606							904		193		0		0

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Estimated Annual Energy Usage - EMS Improvements

Building: Brown Middle School		Proposed	
Unit #: H&V-4 & 5	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Boy's Gym	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: H&V	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	1.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	800	0	0	171	800	Fans	1.5 kW
8 AM - 4 PM	Occupied	2,734	0	0	413	2,734	Cooling	0.0 kW
4 PM - 12 AM	Occupied	1,124	0	0	212	1,124	Total	1.5 kW
All	Unoccupied	0	0	0	0	0		
Totals		4,658	0	0	796	4,658		

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Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Brown Middle School
HVAC System: H&V-4 & 5
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	0	0%	0%	100%	1.5	0.0	1.5	0	0	0	0.0	0	0.00	0
75 / 79	2	0%	0%	100%	1.5	0.0	1.5	2	0	0	0.0	0	0.00	0
70 / 74	9	0%	0%	100%	1.5	0.0	1.5	13	0	0	0.0	0	0.00	0
65 / 69	19	0%	0%	100%	1.5	0.0	1.5	29	53	0	0.0	0	0.00	0
60 / 64	30	0%	0%	100%	1.5	0.0	1.5	45	56	0	0.0	0	0.00	0
55 / 59	43	11%	0%	100%	1.5	0.0	1.5	64	103	2	0.0	0	0.00	0
50 / 54	48	19%	0%	100%	1.5	0.0	1.5	72	136	4	0.0	0	0.00	0
45 / 49	50	27%	0%	100%	1.5	0.0	1.5	74	170	6	0.0	0	0.00	0
40 / 44	52	35%	0%	100%	1.5	0.0	1.5	78	204	11	0.0	0	0.00	0
35 / 39	61	43%	0%	100%	1.5	0.0	1.5	91	238	19	0.0	0	0.00	0
30 / 34	69	51%	0%	100%	1.5	0.0	1.5	102	280	29	0.0	0	0.00	0
25 / 29	48	59%	0%	100%	1.5	0.0	1.5	72	321	25	0.0	0	0.00	0
20 / 24	36	67%	0%	100%	1.5	0.0	1.5	53	363	21	0.0	0	0.00	0
15 / 19	24	75%	0%	100%	1.5	0.0	1.5	36	405	16	0.0	0	0.00	0
10 / 14	18	83%	0%	100%	1.5	0.0	1.5	27	446	14	0.0	0	0.00	0
5 / 9	14	90%	0%	100%	1.5	0.0	1.5	21	488	12	0.0	0	0.00	0
0 / 4	8	98%	0%	100%	1.5	0.0	1.5	12	530	7	0.0	0	0.00	0
-5 / -1	3	100%	0%	100%	1.5	0.0	1.5	4	546	3	0.0	0	0.00	0
-10 / -6	2	100%	0%	100%	1.5	0.0	1.5	2	557	1	0.0	0	0.00	0
-15 / -11	1	100%	0%	100%	1.5	0.0	1.5	1	568	1	0.0	0	0.00	0
-20 / -16	0	100%	0%	100%	1.5	0.0	1.5	0	579	0	0.0	0	0.00	0
	537							800		171		0		0

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Energy Savings Analysis - EMS Improvements

Building: Brown Middle School		Existing	Proposed	
Unit #: H&V-6	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Boy's Locker Room	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: H&V	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	452	0	0	97	452	Fans	0.7 kW
8 AM - 4 PM	Occupied	1,418	0	0	214	1,418	Cooling	0.0 kW
4 PM - 12 AM	Occupied	1,098	0	0	207	1,098	Total	0.7 kW
All	Unoccupied	0	0	0	0	0		
Totals		2,968	0	0	518	2,968		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	400	0	0	86	400	Fans	0.7 kW
8 AM - 4 PM	Occupied	1,367	0	0	207	1,367	Cooling	0.0 kW
4 PM - 12 AM	Occupied	562	0	0	106	562	Total	0.7 kW
All	Unoccupied	0	0	0	0	0		
Totals		2,329	0	0	398	2,329		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	52	0	0	11	52	Fans	0.0 kW
8 AM - 4 PM	Occupied	52	0	0	8	52	Cooling	0.0 kW
4 PM - 12 AM	Occupied	536	0	0	101	536	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		639	0	0	120	639		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Brown Middle School
HVAC System: H&V-6
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	0	0%	0%	100%	0.7	0.0	0.7	0	0	0	0.0	0	0.00	0
75 / 79	2	0%	0%	100%	0.7	0.0	0.7	1	0	0	0.0	0	0.00	0
70 / 74	10	0%	0%	100%	0.7	0.0	0.7	7	0	0	0.0	0	0.00	0
65 / 69	22	0%	0%	100%	0.7	0.0	0.7	16	27	0	0.0	0	0.00	0
60 / 64	34	0%	0%	100%	0.7	0.0	0.7	25	28	0	0.0	0	0.00	0
55 / 59	48	11%	0%	100%	0.7	0.0	0.7	36	51	1	0.0	0	0.00	0
50 / 54	55	19%	0%	100%	0.7	0.0	0.7	41	68	2	0.0	0	0.00	0
45 / 49	56	27%	0%	100%	0.7	0.0	0.7	42	85	4	0.0	0	0.00	0
40 / 44	59	35%	0%	100%	0.7	0.0	0.7	44	102	6	0.0	0	0.00	0
35 / 39	69	43%	0%	100%	0.7	0.0	0.7	51	119	11	0.0	0	0.00	0
30 / 34	78	51%	0%	100%	0.7	0.0	0.7	58	140	17	0.0	0	0.00	0
25 / 29	55	59%	0%	100%	0.7	0.0	0.7	41	161	14	0.0	0	0.00	0
20 / 24	40	67%	0%	100%	0.7	0.0	0.7	30	181	12	0.0	0	0.00	0
15 / 19	27	75%	0%	100%	0.7	0.0	0.7	20	202	9	0.0	0	0.00	0
10 / 14	21	83%	0%	100%	0.7	0.0	0.7	15	223	8	0.0	0	0.00	0
5 / 9	16	90%	0%	100%	0.7	0.0	0.7	12	244	7	0.0	0	0.00	0
0 / 4	9	98%	0%	100%	0.7	0.0	0.7	7	265	4	0.0	0	0.00	0
-5 / -1	3	100%	0%	100%	0.7	0.0	0.7	2	273	1	0.0	0	0.00	0
-10 / -6	2	100%	0%	100%	0.7	0.0	0.7	1	279	1	0.0	0	0.00	0
-15 / -11	1	100%	0%	100%	0.7	0.0	0.7	1	284	0	0.0	0	0.00	0
-20 / -16	0	100%	0%	100%	0.7	0.0	0.7	0	289	0	0.0	0	0.00	0
606					452				97		0			

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Estimated Annual Energy Usage - EMS Improvements

Building: Brown Middle School		Proposed	
Unit #: H&V-6	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Boy's Locker Room	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: H&V	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	1.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	0.7 kW
12 M - 8 AM	Occupied	400	0	0	86	400	Cooling	0.0 kW
8 AM - 4 PM	Occupied	1,367	0	0	207	1,367	Total	0.7 kW
4 PM - 12 AM	Occupied	562	0	0	106	562		
All	Unoccupied	0	0	0	0	0		
Totals		2,329	0	0	398	2,329		

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Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Brown Middle School
HVAC System: H&V-6
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	0	0%	0%	100%	0.7	0.0	0.7	0	0	0	0.0	0	0.00	0
75 / 79	2	0%	0%	100%	0.7	0.0	0.7	1	0	0	0.0	0	0.00	0
70 / 74	9	0%	0%	100%	0.7	0.0	0.7	7	0	0	0.0	0	0.00	0
65 / 69	19	0%	0%	100%	0.7	0.0	0.7	15	27	0	0.0	0	0.00	0
60 / 64	30	0%	0%	100%	0.7	0.0	0.7	22	28	0	0.0	0	0.00	0
55 / 59	43	11%	0%	100%	0.7	0.0	0.7	32	51	1	0.0	0	0.00	0
50 / 54	48	19%	0%	100%	0.7	0.0	0.7	36	68	2	0.0	0	0.00	0
45 / 49	50	27%	0%	100%	0.7	0.0	0.7	37	85	3	0.0	0	0.00	0
40 / 44	52	35%	0%	100%	0.7	0.0	0.7	39	102	6	0.0	0	0.00	0
35 / 39	61	43%	0%	100%	0.7	0.0	0.7	45	119	10	0.0	0	0.00	0
30 / 34	69	51%	0%	100%	0.7	0.0	0.7	51	140	15	0.0	0	0.00	0
25 / 29	48	59%	0%	100%	0.7	0.0	0.7	36	161	13	0.0	0	0.00	0
20 / 24	36	67%	0%	100%	0.7	0.0	0.7	27	181	11	0.0	0	0.00	0
15 / 19	24	75%	0%	100%	0.7	0.0	0.7	18	202	8	0.0	0	0.00	0
10 / 14	18	83%	0%	100%	0.7	0.0	0.7	14	223	7	0.0	0	0.00	0
5 / 9	14	90%	0%	100%	0.7	0.0	0.7	11	244	6	0.0	0	0.00	0
0 / 4	8	98%	0%	100%	0.7	0.0	0.7	6	265	4	0.0	0	0.00	0
-5 / -1	3	100%	0%	100%	0.7	0.0	0.7	2	273	1	0.0	0	0.00	0
-10 / -6	2	100%	0%	100%	0.7	0.0	0.7	1	279	1	0.0	0	0.00	0
-15 / -11	1	100%	0%	100%	0.7	0.0	0.7	0	284	0	0.0	0	0.00	0
-20 / -16	0	100%	0%	100%	0.7	0.0	0.7	0	289	0	0.0	0	0.00	0
537					400				86		0			

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Energy Savings Analysis - EMS Improvements

Building: Brown Middle School		Existing	Proposed	
Unit #: H&V-7	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Cafeteria	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: H&V	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	4,218	0	0	193	4,218	Fans	7.0 kW
8 AM - 4 PM	Occupied	13,239	0	0	429	13,239	Cooling	0.0 kW
4 PM - 12 AM	Occupied	10,247	0	0	413	10,247	Total	7.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		27,704	0	0	1,035	27,704		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	3,736	0	0	171	3,736	Fans	7.0 kW
8 AM - 4 PM	Occupied	12,758	0	0	413	12,758	Cooling	0.0 kW
4 PM - 12 AM	Occupied	5,244	0	0	212	5,244	Total	7.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		21,737	0	0	796	21,737		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	482	0	0	22	482	Fans	0.0 kW
8 AM - 4 PM	Occupied	481	0	0	16	481	Cooling	0.0 kW
4 PM - 12 AM	Occupied	5,003	0	0	202	5,003	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		5,966	0	0	240	5,966		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Brown Middle School
HVAC System: H&V-7
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	0	0%	0%	100%	7.0	0.0	7.0	2	0	0	0.0	0	0.00	0
75 / 79	2	0%	0%	100%	7.0	0.0	7.0	12	0	0	0.0	0	0.00	0
70 / 74	10	0%	0%	100%	7.0	0.0	7.0	70	0	0	0.0	0	0.00	0
65 / 69	22	0%	0%	100%	7.0	0.0	7.0	153	53	0	0.0	0	0.00	0
60 / 64	34	0%	0%	100%	7.0	0.0	7.0	237	56	0	0.0	0	0.00	0
55 / 59	48	11%	0%	100%	7.0	0.0	7.0	336	103	2	0.0	0	0.00	0
50 / 54	55	19%	0%	100%	7.0	0.0	7.0	379	136	4	0.0	0	0.00	0
45 / 49	56	27%	0%	100%	7.0	0.0	7.0	392	170	7	0.0	0	0.00	0
40 / 44	59	35%	0%	100%	7.0	0.0	7.0	411	204	13	0.0	0	0.00	0
35 / 39	69	43%	0%	100%	7.0	0.0	7.0	477	238	22	0.0	0	0.00	0
30 / 34	78	51%	0%	100%	7.0	0.0	7.0	540	280	33	0.0	0	0.00	0
25 / 29	55	59%	0%	100%	7.0	0.0	7.0	381	321	28	0.0	0	0.00	0
20 / 24	40	67%	0%	100%	7.0	0.0	7.0	280	363	24	0.0	0	0.00	0
15 / 19	27	75%	0%	100%	7.0	0.0	7.0	188	405	18	0.0	0	0.00	0
10 / 14	21	83%	0%	100%	7.0	0.0	7.0	144	446	15	0.0	0	0.00	0
5 / 9	16	90%	0%	100%	7.0	0.0	7.0	111	488	13	0.0	0	0.00	0
0 / 4	9	98%	0%	100%	7.0	0.0	7.0	63	530	8	0.0	0	0.00	0
-5 / -1	3	100%	0%	100%	7.0	0.0	7.0	23	546	3	0.0	0	0.00	0
-10 / -6	2	100%	0%	100%	7.0	0.0	7.0	12	557	2	0.0	0	0.00	0
-15 / -11	1	100%	0%	100%	7.0	0.0	7.0	5	568	1	0.0	0	0.00	0
-20 / -16	0	100%	0%	100%	7.0	0.0	7.0	2	579	0	0.0	0	0.00	0
606					4,218				193		0			

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Estimated Annual Energy Usage - EMS Improvements

Building: Brown Middle School		Proposed	
Unit #: H&V-7	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Cafeteria	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: H&V	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	1.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	7.0 kW
12 M - 8 AM	Occupied	3,736	0	0	171	3,736	Cooling	0.0 kW
8 AM - 4 PM	Occupied	12,758	0	0	413	12,758		
4 PM - 12 AM	Occupied	5,244	0	0	212	5,244		
All	Unoccupied	0	0	0	0	0		
Totals		21,737	0	0	796	21,737	Total	7.0 kW

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Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Brown Middle School
HVAC System: H&V-7
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	0	0%	0%	100%	7.0	0.0	7.0	2	0	0	0.0	0	0.00	0
75 / 79	2	0%	0%	100%	7.0	0.0	7.0	11	0	0	0.0	0	0.00	0
70 / 74	9	0%	0%	100%	7.0	0.0	7.0	62	0	0	0.0	0	0.00	0
65 / 69	19	0%	0%	100%	7.0	0.0	7.0	136	53	0	0.0	0	0.00	0
60 / 64	30	0%	0%	100%	7.0	0.0	7.0	210	56	0	0.0	0	0.00	0
55 / 59	43	11%	0%	100%	7.0	0.0	7.0	298	103	2	0.0	0	0.00	0
50 / 54	48	19%	0%	100%	7.0	0.0	7.0	336	136	4	0.0	0	0.00	0
45 / 49	50	27%	0%	100%	7.0	0.0	7.0	347	170	6	0.0	0	0.00	0
40 / 44	52	35%	0%	100%	7.0	0.0	7.0	364	204	11	0.0	0	0.00	0
35 / 39	61	43%	0%	100%	7.0	0.0	7.0	422	238	19	0.0	0	0.00	0
30 / 34	69	51%	0%	100%	7.0	0.0	7.0	478	280	29	0.0	0	0.00	0
25 / 29	48	59%	0%	100%	7.0	0.0	7.0	338	321	25	0.0	0	0.00	0
20 / 24	36	67%	0%	100%	7.0	0.0	7.0	248	363	21	0.0	0	0.00	0
15 / 19	24	75%	0%	100%	7.0	0.0	7.0	167	405	16	0.0	0	0.00	0
10 / 14	18	83%	0%	100%	7.0	0.0	7.0	128	446	14	0.0	0	0.00	0
5 / 9	14	90%	0%	100%	7.0	0.0	7.0	99	488	12	0.0	0	0.00	0
0 / 4	8	98%	0%	100%	7.0	0.0	7.0	56	530	7	0.0	0	0.00	0
-5 / -1	3	100%	0%	100%	7.0	0.0	7.0	20	546	3	0.0	0	0.00	0
-10 / -6	2	100%	0%	100%	7.0	0.0	7.0	11	557	1	0.0	0	0.00	0
-15 / -11	1	100%	0%	100%	7.0	0.0	7.0	5	568	1	0.0	0	0.00	0
-20 / -16	0	100%	0%	100%	7.0	0.0	7.0	2	579	0	0.0	0	0.00	0
	537							3,736		171		0		0

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Energy Savings Analysis - EMS Improvements

Building: Brown Middle School		Existing	Proposed	
Unit #: H&V-9	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Library	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: H&V	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	452	0	0	97	452	Fans	0.7 kW
8 AM - 4 PM	Occupied	1,418	0	0	214	1,418	Cooling	0.0 kW
4 PM - 12 AM	Occupied	1,098	0	0	207	1,098	Total	0.7 kW
All	Unoccupied	0	0	0	0	0		
Totals		2,968	0	0	518	2,968		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	400	0	0	86	400	Fans	0.7 kW
8 AM - 4 PM	Occupied	1,367	0	0	207	1,367	Cooling	0.0 kW
4 PM - 12 AM	Occupied	562	0	0	106	562	Total	0.7 kW
All	Unoccupied	0	0	0	0	0		
Totals		2,329	0	0	398	2,329		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	52	0	0	11	52	Fans	0.0 kW
8 AM - 4 PM	Occupied	52	0	0	8	52	Cooling	0.0 kW
4 PM - 12 AM	Occupied	536	0	0	101	536	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		639	0	0	120	639		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Brown Middle School
HVAC System: H&V-9
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	0	0%	0%	100%	0.7	0.0	0.7	0	0	0	0.0	0	0.00	0
75 / 79	2	0%	0%	100%	0.7	0.0	0.7	1	0	0	0.0	0	0.00	0
70 / 74	10	0%	0%	100%	0.7	0.0	0.7	7	0	0	0.0	0	0.00	0
65 / 69	22	0%	0%	100%	0.7	0.0	0.7	16	27	0	0.0	0	0.00	0
60 / 64	34	0%	0%	100%	0.7	0.0	0.7	25	28	0	0.0	0	0.00	0
55 / 59	48	11%	0%	100%	0.7	0.0	0.7	36	51	1	0.0	0	0.00	0
50 / 54	55	19%	0%	100%	0.7	0.0	0.7	41	68	2	0.0	0	0.00	0
45 / 49	56	27%	0%	100%	0.7	0.0	0.7	42	85	4	0.0	0	0.00	0
40 / 44	59	35%	0%	100%	0.7	0.0	0.7	44	102	6	0.0	0	0.00	0
35 / 39	69	43%	0%	100%	0.7	0.0	0.7	51	119	11	0.0	0	0.00	0
30 / 34	78	51%	0%	100%	0.7	0.0	0.7	58	140	17	0.0	0	0.00	0
25 / 29	55	59%	0%	100%	0.7	0.0	0.7	41	161	14	0.0	0	0.00	0
20 / 24	40	67%	0%	100%	0.7	0.0	0.7	30	181	12	0.0	0	0.00	0
15 / 19	27	75%	0%	100%	0.7	0.0	0.7	20	202	9	0.0	0	0.00	0
10 / 14	21	83%	0%	100%	0.7	0.0	0.7	15	223	8	0.0	0	0.00	0
5 / 9	16	90%	0%	100%	0.7	0.0	0.7	12	244	7	0.0	0	0.00	0
0 / 4	9	98%	0%	100%	0.7	0.0	0.7	7	265	4	0.0	0	0.00	0
-5 / -1	3	100%	0%	100%	0.7	0.0	0.7	2	273	1	0.0	0	0.00	0
-10 / -6	2	100%	0%	100%	0.7	0.0	0.7	1	279	1	0.0	0	0.00	0
-15 / -11	1	100%	0%	100%	0.7	0.0	0.7	1	284	0	0.0	0	0.00	0
-20 / -16	0	100%	0%	100%	0.7	0.0	0.7	0	289	0	0.0	0	0.00	0
	606							452		97		0		0

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Estimated Annual Energy Usage - EMS Improvements

Building: Brown Middle School		Proposed	
Unit #: H&V-9	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Library	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: H&V	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	1.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	0.7 kW
12 M - 8 AM	Occupied	400	0	0	86	400	Cooling	0.0 kW
8 AM - 4 PM	Occupied	1,367	0	0	207	1,367	Total	0.7 kW
4 PM - 12 AM	Occupied	562	0	0	106	562		
All	Unoccupied	0	0	0	0	0		
Totals		2,329	0	0	398	2,329		

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Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Brown Middle School
HVAC System: H&V-9
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	0	0%	0%	100%	0.7	0.0	0.7	0	0	0	0.0	0	0.00	0
75 / 79	2	0%	0%	100%	0.7	0.0	0.7	1	0	0	0.0	0	0.00	0
70 / 74	9	0%	0%	100%	0.7	0.0	0.7	7	0	0	0.0	0	0.00	0
65 / 69	19	0%	0%	100%	0.7	0.0	0.7	15	27	0	0.0	0	0.00	0
60 / 64	30	0%	0%	100%	0.7	0.0	0.7	22	28	0	0.0	0	0.00	0
55 / 59	43	11%	0%	100%	0.7	0.0	0.7	32	51	1	0.0	0	0.00	0
50 / 54	48	19%	0%	100%	0.7	0.0	0.7	36	68	2	0.0	0	0.00	0
45 / 49	50	27%	0%	100%	0.7	0.0	0.7	37	85	3	0.0	0	0.00	0
40 / 44	52	35%	0%	100%	0.7	0.0	0.7	39	102	6	0.0	0	0.00	0
35 / 39	61	43%	0%	100%	0.7	0.0	0.7	45	119	10	0.0	0	0.00	0
30 / 34	69	51%	0%	100%	0.7	0.0	0.7	51	140	15	0.0	0	0.00	0
25 / 29	48	59%	0%	100%	0.7	0.0	0.7	36	161	13	0.0	0	0.00	0
20 / 24	36	67%	0%	100%	0.7	0.0	0.7	27	181	11	0.0	0	0.00	0
15 / 19	24	75%	0%	100%	0.7	0.0	0.7	18	202	8	0.0	0	0.00	0
10 / 14	18	83%	0%	100%	0.7	0.0	0.7	14	223	7	0.0	0	0.00	0
5 / 9	14	90%	0%	100%	0.7	0.0	0.7	11	244	6	0.0	0	0.00	0
0 / 4	8	98%	0%	100%	0.7	0.0	0.7	6	265	4	0.0	0	0.00	0
-5 / -1	3	100%	0%	100%	0.7	0.0	0.7	2	273	1	0.0	0	0.00	0
-10 / -6	2	100%	0%	100%	0.7	0.0	0.7	1	279	1	0.0	0	0.00	0
-15 / -11	1	100%	0%	100%	0.7	0.0	0.7	0	284	0	0.0	0	0.00	0
-20 / -16	0	100%	0%	100%	0.7	0.0	0.7	0	289	0	0.0	0	0.00	0
	537							400		86		0		0

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Energy Savings Analysis - EMS Improvements

Building: Brown Middle School		Existing	Proposed	
Unit #: H&V-10	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Rms 229/229A	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: H&V	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	Cooling
12 M - 8 AM	Occupied	339	0	0	48	339	0.6 kW	0.0 kW
8 AM - 4 PM	Occupied	1,064	0	0	107	1,064		
4 PM - 12 AM	Occupied	823	0	0	103	823		
All	Unoccupied	0	0	0	0	0		
Totals		2,226	0	0	259	2,226	Total	0.6 kW

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	Cooling
12 M - 8 AM	Occupied	300	0	0	43	300	0.6 kW	0.0 kW
8 AM - 4 PM	Occupied	1,025	0	0	103	1,025		
4 PM - 12 AM	Occupied	421	0	0	53	421		
All	Unoccupied	0	0	0	0	0		
Totals		1,747	0	0	199	1,747	Total	0.6 kW

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	Cooling
12 M - 8 AM	Occupied	39	0	0	6	39	0.0 kW	0.0 kW
8 AM - 4 PM	Occupied	39	0	0	4	39		
4 PM - 12 AM	Occupied	402	0	0	50	402		
All	Unoccupied	0	0	0	0	0		
Totals		479	0	0	60	479	Total	0.0 kW

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Brown Middle School
HVAC System: H&V-10
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	0	0%	0%	100%	0.6	0.0	0.6	0	0	0	0.0	0	0.00	0
75 / 79	2	0%	0%	100%	0.6	0.0	0.6	1	0	0	0.0	0	0.00	0
70 / 74	10	0%	0%	100%	0.6	0.0	0.6	6	0	0	0.0	0	0.00	0
65 / 69	22	0%	0%	100%	0.6	0.0	0.6	12	13	0	0.0	0	0.00	0
60 / 64	34	0%	0%	100%	0.6	0.0	0.6	19	14	0	0.0	0	0.00	0
55 / 59	48	11%	0%	100%	0.6	0.0	0.6	27	26	0	0.0	0	0.00	0
50 / 54	55	19%	0%	100%	0.6	0.0	0.6	30	34	1	0.0	0	0.00	0
45 / 49	56	27%	0%	100%	0.6	0.0	0.6	31	43	2	0.0	0	0.00	0
40 / 44	59	35%	0%	100%	0.6	0.0	0.6	33	51	3	0.0	0	0.00	0
35 / 39	69	43%	0%	100%	0.6	0.0	0.6	38	59	5	0.0	0	0.00	0
30 / 34	78	51%	0%	100%	0.6	0.0	0.6	43	70	8	0.0	0	0.00	0
25 / 29	55	59%	0%	100%	0.6	0.0	0.6	31	80	7	0.0	0	0.00	0
20 / 24	40	67%	0%	100%	0.6	0.0	0.6	23	91	6	0.0	0	0.00	0
15 / 19	27	75%	0%	100%	0.6	0.0	0.6	15	101	5	0.0	0	0.00	0
10 / 14	21	83%	0%	100%	0.6	0.0	0.6	12	112	4	0.0	0	0.00	0
5 / 9	16	90%	0%	100%	0.6	0.0	0.6	9	122	3	0.0	0	0.00	0
0 / 4	9	98%	0%	100%	0.6	0.0	0.6	5	132	2	0.0	0	0.00	0
-5 / -1	3	100%	0%	100%	0.6	0.0	0.6	2	137	1	0.0	0	0.00	0
-10 / -6	2	100%	0%	100%	0.6	0.0	0.6	1	139	0	0.0	0	0.00	0
-15 / -11	1	100%	0%	100%	0.6	0.0	0.6	0	142	0	0.0	0	0.00	0
-20 / -16	0	100%	0%	100%	0.6	0.0	0.6	0	145	0	0.0	0	0.00	0
	606							339		48		0		0

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Estimated Annual Energy Usage - EMS Improvements

Building: Brown Middle School		Proposed	
Unit #: H&V-10	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Rms 229/229A	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: H&V	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	1.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	0.6 kW
12 M - 8 AM	Occupied	300	0	0	43	300	Cooling	0.0 kW
8 AM - 4 PM	Occupied	1,025	0	0	103	1,025	Total	0.6 kW
4 PM - 12 AM	Occupied	421	0	0	53	421		
All	Unoccupied	0	0	0	0	0		
Totals		1,747	0	0	199	1,747		

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Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Brown Middle School
HVAC System: H&V-10
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton- Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	0	0%	0%	100%	0.6	0.0	0.6	0	0	0	0.0	0	0.00	0
75 / 79	2	0%	0%	100%	0.6	0.0	0.6	1	0	0	0.0	0	0.00	0
70 / 74	9	0%	0%	100%	0.6	0.0	0.6	5	0	0	0.0	0	0.00	0
65 / 69	19	0%	0%	100%	0.6	0.0	0.6	11	13	0	0.0	0	0.00	0
60 / 64	30	0%	0%	100%	0.6	0.0	0.6	17	14	0	0.0	0	0.00	0
55 / 59	43	11%	0%	100%	0.6	0.0	0.6	24	26	0	0.0	0	0.00	0
50 / 54	48	19%	0%	100%	0.6	0.0	0.6	27	34	1	0.0	0	0.00	0
45 / 49	50	27%	0%	100%	0.6	0.0	0.6	28	43	2	0.0	0	0.00	0
40 / 44	52	35%	0%	100%	0.6	0.0	0.6	29	51	3	0.0	0	0.00	0
35 / 39	61	43%	0%	100%	0.6	0.0	0.6	34	59	5	0.0	0	0.00	0
30 / 34	69	51%	0%	100%	0.6	0.0	0.6	38	70	7	0.0	0	0.00	0
25 / 29	48	59%	0%	100%	0.6	0.0	0.6	27	80	6	0.0	0	0.00	0
20 / 24	36	67%	0%	100%	0.6	0.0	0.6	20	91	5	0.0	0	0.00	0
15 / 19	24	75%	0%	100%	0.6	0.0	0.6	13	101	4	0.0	0	0.00	0
10 / 14	18	83%	0%	100%	0.6	0.0	0.6	10	112	3	0.0	0	0.00	0
5 / 9	14	90%	0%	100%	0.6	0.0	0.6	8	122	3	0.0	0	0.00	0
0 / 4	8	98%	0%	100%	0.6	0.0	0.6	4	132	2	0.0	0	0.00	0
-5 / -1	3	100%	0%	100%	0.6	0.0	0.6	2	137	1	0.0	0	0.00	0
-10 / -6	2	100%	0%	100%	0.6	0.0	0.6	1	139	0	0.0	0	0.00	0
-15 / -11	1	100%	0%	100%	0.6	0.0	0.6	0	142	0	0.0	0	0.00	0
-20 / -16	0	100%	0%	100%	0.6	0.0	0.6	0	145	0	0.0	0	0.00	0
					537				300	43	0			

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Energy Savings Analysis - EMS Improvements

Building: Brown Middle School		Existing	Proposed	
Unit #: H&V-11	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Rms 229/229A	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Auditorium	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	2,259	0	0	232	2,259	Fans	3.7 kW
8 AM - 4 PM	Occupied	7,092	0	0	514	7,092	Cooling	0.0 kW
4 PM - 12 AM	Occupied	5,489	0	0	496	5,489	Total	3.7 kW
All	Unoccupied	0	0	0	0	0		
Totals		14,841	0	0	1,243	14,841		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	2,001	0	0	206	2,001	Fans	3.7 kW
8 AM - 4 PM	Occupied	6,834	0	0	496	6,834	Cooling	0.0 kW
4 PM - 12 AM	Occupied	2,809	0	0	254	2,809	Total	3.7 kW
All	Unoccupied	0	0	0	0	0		
Totals		11,645	0	0	955	11,645		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	258	0	0	27	258	Fans	0.0 kW
8 AM - 4 PM	Occupied	258	0	0	19	258	Cooling	0.0 kW
4 PM - 12 AM	Occupied	2,680	0	0	242	2,680	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		3,196	0	0	287	3,196		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Brown Middle School
HVAC System: H&V-11
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	0	0%	0%	100%	3.7	0.0	3.7	1	0	0	0.0	0	0.00	0
75 / 79	2	0%	0%	100%	3.7	0.0	3.7	7	0	0	0.0	0	0.00	0
70 / 74	10	0%	0%	100%	3.7	0.0	3.7	37	0	0	0.0	0	0.00	0
65 / 69	22	0%	0%	100%	3.7	0.0	3.7	82	64	0	0.0	0	0.00	0
60 / 64	34	0%	0%	100%	3.7	0.0	3.7	127	68	1	0.0	0	0.00	0
55 / 59	48	11%	0%	100%	3.7	0.0	3.7	180	123	2	0.0	0	0.00	0
50 / 54	55	19%	0%	100%	3.7	0.0	3.7	203	164	5	0.0	0	0.00	0
45 / 49	56	27%	0%	100%	3.7	0.0	3.7	210	204	8	0.0	0	0.00	0
40 / 44	59	35%	0%	100%	3.7	0.0	3.7	220	245	15	0.0	0	0.00	0
35 / 39	69	43%	0%	100%	3.7	0.0	3.7	256	285	26	0.0	0	0.00	0
30 / 34	78	51%	0%	100%	3.7	0.0	3.7	289	335	40	0.0	0	0.00	0
25 / 29	55	59%	0%	100%	3.7	0.0	3.7	204	385	34	0.0	0	0.00	0
20 / 24	40	67%	0%	100%	3.7	0.0	3.7	150	435	29	0.0	0	0.00	0
15 / 19	27	75%	0%	100%	3.7	0.0	3.7	101	485	22	0.0	0	0.00	0
10 / 14	21	83%	0%	100%	3.7	0.0	3.7	77	535	19	0.0	0	0.00	0
5 / 9	16	90%	0%	100%	3.7	0.0	3.7	60	585	16	0.0	0	0.00	0
0 / 4	9	98%	0%	100%	3.7	0.0	3.7	34	635	10	0.0	0	0.00	0
-5 / -1	3	100%	0%	100%	3.7	0.0	3.7	12	656	4	0.0	0	0.00	0
-10 / -6	2	100%	0%	100%	3.7	0.0	3.7	7	669	2	0.0	0	0.00	0
-15 / -11	1	100%	0%	100%	3.7	0.0	3.7	3	682	1	0.0	0	0.00	0
-20 / -16	0	100%	0%	100%	3.7	0.0	3.7	1	695	0	0.0	0	0.00	0
606								2,259		232		0		0

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Estimated Annual Energy Usage - EMS Improvements

Building: Brown Middle School		Proposed	
Unit #: H&V-11	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Rms 229/229A	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: Auditorium	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	1.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	3.7 kW
12 M - 8 AM	Occupied	2,001	0	0	206	2,001	Cooling	0.0 kW
8 AM - 4 PM	Occupied	6,834	0	0	496	6,834		
4 PM - 12 AM	Occupied	2,809	0	0	254	2,809		
All	Unoccupied	0	0	0	0	0		
Totals		11,645	0	0	955	11,645	Total	3.7 kW

NORESCO

Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Brown Middle School
HVAC System: H&V-11
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton- Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	0%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	0	0%	0%	100%	3.7	0.0	3.7	1	0	0	0.0	0	0.00	0
75 / 79	2	0%	0%	100%	3.7	0.0	3.7	6	0	0	0.0	0	0.00	0
70 / 74	9	0%	0%	100%	3.7	0.0	3.7	33	0	0	0.0	0	0.00	0
65 / 69	19	0%	0%	100%	3.7	0.0	3.7	73	64	0	0.0	0	0.00	0
60 / 64	30	0%	0%	100%	3.7	0.0	3.7	112	68	0	0.0	0	0.00	0
55 / 59	43	11%	0%	100%	3.7	0.0	3.7	159	123	2	0.0	0	0.00	0
50 / 54	48	19%	0%	100%	3.7	0.0	3.7	180	164	4	0.0	0	0.00	0
45 / 49	50	27%	0%	100%	3.7	0.0	3.7	186	204	7	0.0	0	0.00	0
40 / 44	52	35%	0%	100%	3.7	0.0	3.7	195	245	13	0.0	0	0.00	0
35 / 39	61	43%	0%	100%	3.7	0.0	3.7	226	285	23	0.0	0	0.00	0
30 / 34	69	51%	0%	100%	3.7	0.0	3.7	256	335	35	0.0	0	0.00	0
25 / 29	48	59%	0%	100%	3.7	0.0	3.7	181	385	30	0.0	0	0.00	0
20 / 24	36	67%	0%	100%	3.7	0.0	3.7	133	435	26	0.0	0	0.00	0
15 / 19	24	75%	0%	100%	3.7	0.0	3.7	89	485	19	0.0	0	0.00	0
10 / 14	18	83%	0%	100%	3.7	0.0	3.7	69	535	16	0.0	0	0.00	0
5 / 9	14	90%	0%	100%	3.7	0.0	3.7	53	585	14	0.0	0	0.00	0
0 / 4	8	98%	0%	100%	3.7	0.0	3.7	30	635	8	0.0	0	0.00	0
-5 / -1	3	100%	0%	100%	3.7	0.0	3.7	11	656	3	0.0	0	0.00	0
-10 / -6	2	100%	0%	100%	3.7	0.0	3.7	6	669	2	0.0	0	0.00	0
-15 / -11	1	100%	0%	100%	3.7	0.0	3.7	2	682	1	0.0	0	0.00	0
-20 / -16	0	100%	0%	100%	3.7	0.0	3.7	1	695	0	0.0	0	0.00	0
537								2,001		206		0		0

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Oak Hill Middle School - ECM Savings Summary

EMS Improvements

Unit #	Quantity	kWk Supply And Return Fans			kWh Cooling			Heating			kWh Unit Total		
		kWh Existing Unit	kWh Proposed Unit	Annual kWh Saved	kWh Existing Unit	kWh Proposed Unit	Annual kWh Saved	MMBTU Existing Unit	MMBTU Proposed Unit	Annual MMBTU Saved	kWh Existing Unit	kWh Proposed Unit	Annual kWh Saved
UV-A	29	7,582	6,920	663	0	0	0	1,405	1,292	114	7,582	6,920	663
UV-B	4	1,046	954	91	0	0	0	246	227	20	1,046	954	91
UV-C	4	4,183	3,818	366	0	0	0	89	82	7	4,183	3,818	366
UV-D	3	3,138	2,863	274	0	0	0	86	79	7	3,138	2,863	274
UV-E	5	5,229	4,772	457	0	0	0	270	248	22	5,229	4,772	457
UV-F	3	3,138	2,863	274	0	0	0	175	161	14	3,138	2,863	274
UV-G	5	5,229	4,772	457	0	0	0	411	378	33	5,229	4,772	457
UV-H	4	4,183	3,818	366	0	0	0	82	76	7	4,183	3,818	366
AHU-1	1	2,092	1,909	183	1,040	930	109	25	23	2	3,131	2,839	292
AHU-2	1	2,092	1,909	183	1,527	1,358	169	29	27	2	3,618	3,267	351
AHU-3,4	2	12,550	11,453	1,097	0	0	0	616	566	50	12,550	11,453	1,097
AHU-7	1	3,660	3,341	320	0	0	0	114	105	9	3,660	3,341	320
AHU-8	1	22,519	20,551	1,968	13,099	11,676	1,422	454	418	37	35,618	32,227	3,390
AHU-9	1	8,939	8,158	781	7,426	6,629	796	156	144	13	16,365	14,787	1,578
AHU-10	1	15,271	13,936	1,335	0	0	0	419	385	34	15,271	13,936	1,335
AHU-11	1	9,877	9,014	863	7,990	7,111	879	154	142	12	17,867	16,125	1,742
AHU-12	1	6,545	5,973	572	0	0	0	465	427	38	6,545	5,973	572
AHU-13,14	2	4,363	3,982	381	0	0	0	0	0	0	4,363	3,982	381
Exhaust	1	20,812	18,993	1,819	0	0	0	0	0	0	20,812	18,993	1,819
Pumps	1	28,132	26,423	1,708	0	0	0	0	0	0	28,132	26,423	1,708
Total		142,447	129,998	12,449	31,080	27,704	3,376	5,197	4,777	421	173,528	157,703	15,825

NORESCO

Energy Savings Analysis - EMS Improvements

Building: Oak Hill Middle School		Existing	Proposed	
Unit #: UV-A	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	57	0	0	13	57	Fans	0.1 kW
8 AM - 4 PM	Occupied	194	0	0	33	194	Cooling	0.0 kW
4 PM - 12 AM	Occupied	11	0	0	2	11	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		261	0	0	48	261		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	57	0	0	13	57	Fans	0.1 kW
8 AM - 4 PM	Occupied	171	0	0	29	171	Cooling	0.0 kW
4 PM - 12 AM	Occupied	11	0	0	2	11	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		239	0	0	45	239		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	0	0	0	0	0	Fans	0.0 kW
8 AM - 4 PM	Occupied	23	0	0	4	23	Cooling	0.0 kW
4 PM - 12 AM	Occupied	0	0	0	0	0	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		23	0	0	4	23		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: UV-A
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
80 / 84	1	0%	77%	100%	0.1	0.0	0.1	0	0	0	0.0	0	####	0
75 / 79	6	0%	68%	100%	0.1	0.0	0.1	1	0	0	0.0	0	9.64	0
70 / 74	26	0%	59%	100%	0.1	0.0	0.1	2	0	0	0.0	0	8.65	0
65 / 69	49	0%	50%	100%	0.1	0.0	0.1	4	0	0	0.0	0	8.25	0
60 / 64	58	0%	41%	100%	0.1	0.0	0.1	5	0	0	0.0	0	8.25	0
55 / 59	60	0%	32%	100%	0.1	0.0	0.1	5	0	0	0.0	0	8.25	0
50 / 54	56	0%	24%	100%	0.1	0.0	0.1	5	4	0	0.0	0	8.25	0
45 / 49	54	17%	20%	100%	0.1	0.0	0.1	5	19	0	0.0	0	8.25	0
40 / 44	53	25%	20%	100%	0.1	0.0	0.1	5	24	1	0.0	0	8.25	0
35 / 39	61	33%	20%	100%	0.1	0.0	0.1	5	30	1	0.0	0	8.25	0
30 / 34	69	41%	20%	100%	0.1	0.0	0.1	6	36	2	0.0	0	8.25	0
25 / 29	48	49%	20%	100%	0.1	0.0	0.1	4	41	2	0.0	0	8.25	0
20 / 24	36	57%	20%	100%	0.1	0.0	0.1	3	47	2	0.0	0	8.25	0
15 / 19	24	65%	20%	100%	0.1	0.0	0.1	2	53	1	0.0	0	8.25	0
10 / 14	18	73%	20%	100%	0.1	0.0	0.1	2	58	1	0.0	0	8.25	0
5 / 9	14	81%	20%	100%	0.1	0.0	0.1	1	64	1	0.0	0	8.25	0
0 / 4	8	89%	20%	100%	0.1	0.0	0.1	1	70	1	0.0	0	8.25	0
-5 / -1	3	97%	20%	100%	0.1	0.0	0.1	0	75	0	0.0	0	8.25	0
-10 / -6	2	100%	20%	100%	0.1	0.0	0.1	0	79	0	0.0	0	8.25	0
-15 / -11	1	100%	20%	100%	0.1	0.0	0.1	0	82	0	0.0	0	8.25	0
-20 / -16	0	100%	20%	100%	0.1	0.0	0.1	0	84	0	0.0	0	8.25	0
646								57		13		0		0

NORESCO

Estimated Annual Energy Usage - EMS Improvements

Building: Oak Hill Middle School		Proposed	
Unit #: UV-A	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Classrooms	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: Unit Vent	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	D	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	1.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	0.1 kW
12 M - 8 AM	Occupied	57	0	0	13	57	Cooling	0.0 kW
8 AM - 4 PM	Occupied	171	0	0	29	171		
4 PM - 12 AM	Occupied	11	0	0	2	11		
All	Unoccupied	0	0	0	0	0		
Totals		239	0	0	45	239	Total	0.1 kW

NORESCO

Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: UV-A
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	13.60	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	12.61	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	11.62	0
80 / 84	1	0%	77%	100%	0.1	0.0	0.1	0	0	0	0.0	0	10.63	0
75 / 79	6	0%	68%	100%	0.1	0.0	0.1	1	0	0	0.0	0	9.64	0
70 / 74	26	0%	59%	100%	0.1	0.0	0.1	2	0	0	0.0	0	8.65	0
65 / 69	49	0%	50%	100%	0.1	0.0	0.1	4	0	0	0.0	0	8.25	0
60 / 64	58	0%	41%	100%	0.1	0.0	0.1	5	0	0	0.0	0	8.25	0
55 / 59	60	0%	32%	100%	0.1	0.0	0.1	5	0	0	0.0	0	8.25	0
50 / 54	56	0%	24%	100%	0.1	0.0	0.1	5	4	0	0.0	0	8.25	0
45 / 49	54	17%	20%	100%	0.1	0.0	0.1	5	19	0	0.0	0	8.25	0
40 / 44	53	25%	20%	100%	0.1	0.0	0.1	5	24	1	0.0	0	8.25	0
35 / 39	61	33%	20%	100%	0.1	0.0	0.1	5	30	1	0.0	0	8.25	0
30 / 34	69	41%	20%	100%	0.1	0.0	0.1	6	36	2	0.0	0	8.25	0
25 / 29	48	49%	20%	100%	0.1	0.0	0.1	4	41	2	0.0	0	8.25	0
20 / 24	36	57%	20%	100%	0.1	0.0	0.1	3	47	2	0.0	0	8.25	0
15 / 19	24	65%	20%	100%	0.1	0.0	0.1	2	53	1	0.0	0	8.25	0
10 / 14	18	73%	20%	100%	0.1	0.0	0.1	2	58	1	0.0	0	8.25	0
5 / 9	14	81%	20%	100%	0.1	0.0	0.1	1	64	1	0.0	0	8.25	0
0 / 4	8	89%	20%	100%	0.1	0.0	0.1	1	70	1	0.0	0	8.25	0
-5 / -1	3	97%	20%	100%	0.1	0.0	0.1	0	75	0	0.0	0	8.25	0
-10 / -6	2	100%	20%	100%	0.1	0.0	0.1	0	79	0	0.0	0	8.25	0
-15 / -11	1	100%	20%	100%	0.1	0.0	0.1	0	82	0	0.0	0	8.25	0
-20 / -16	0	100%	20%	100%	0.1	0.0	0.1	0	84	0	0.0	0	8.25	0
	646							57		13		0		0

NORESCO

Energy Savings Analysis - EMS Improvements

Building: Oak Hill Middle School		Existing	Proposed	
Unit #: UV-B	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	57	0	0	17	57	Fans	0.1 kW
8 AM - 4 PM	Occupied	194	0	0	42	194	Cooling	0.0 kW
4 PM - 12 AM	Occupied	11	0	0	3	11	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		261	0	0	62	261		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	57	0	0	17	57	Fans	0.1 kW
8 AM - 4 PM	Occupied	171	0	0	37	171	Cooling	0.0 kW
4 PM - 12 AM	Occupied	11	0	0	3	11	Total	0.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		239	0	0	57	239		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	0	0	0	0	0	Fans	0.0 kW
8 AM - 4 PM	Occupied	23	0	0	5	23	Cooling	0.0 kW
4 PM - 12 AM	Occupied	0	0	0	0	0	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		23	0	0	5	23		

NORESCO

Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: UV-B
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	13.60	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	12.61	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	11.62	0
80 / 84	1	0%	77%	100%	0.1	0.0	0.1	0	0	0	0.0	0	10.63	0
75 / 79	6	0%	68%	100%	0.1	0.0	0.1	1	0	0	0.0	0	9.64	0
70 / 74	26	0%	59%	100%	0.1	0.0	0.1	2	0	0	0.0	0	8.65	0
65 / 69	49	0%	50%	100%	0.1	0.0	0.1	4	0	0	0.0	0	8.25	0
60 / 64	58	0%	41%	100%	0.1	0.0	0.1	5	0	0	0.0	0	8.25	0
55 / 59	60	0%	32%	100%	0.1	0.0	0.1	5	0	0	0.0	0	8.25	0
50 / 54	56	0%	24%	100%	0.1	0.0	0.1	5	6	0	0.0	0	8.25	0
45 / 49	54	17%	20%	100%	0.1	0.0	0.1	5	25	0	0.0	0	8.25	0
40 / 44	53	25%	20%	100%	0.1	0.0	0.1	5	31	1	0.0	0	8.25	0
35 / 39	61	33%	20%	100%	0.1	0.0	0.1	5	38	2	0.0	0	8.25	0
30 / 34	69	41%	20%	100%	0.1	0.0	0.1	6	45	3	0.0	0	8.25	0
25 / 29	48	49%	20%	100%	0.1	0.0	0.1	4	52	3	0.0	0	8.25	0
20 / 24	36	57%	20%	100%	0.1	0.0	0.1	3	59	2	0.0	0	8.25	0
15 / 19	24	65%	20%	100%	0.1	0.0	0.1	2	67	2	0.0	0	8.25	0
10 / 14	18	73%	20%	100%	0.1	0.0	0.1	2	74	2	0.0	0	8.25	0
5 / 9	14	81%	20%	100%	0.1	0.0	0.1	1	81	1	0.0	0	8.25	0
0 / 4	8	89%	20%	100%	0.1	0.0	0.1	1	88	1	0.0	0	8.25	0
-5 / -1	3	97%	20%	100%	0.1	0.0	0.1	0	95	0	0.0	0	8.25	0
-10 / -6	2	100%	20%	100%	0.1	0.0	0.1	0	100	0	0.0	0	8.25	0
-15 / -11	1	100%	20%	100%	0.1	0.0	0.1	0	103	0	0.0	0	8.25	0
-20 / -16	0	100%	20%	100%	0.1	0.0	0.1	0	107	0	0.0	0	8.25	0
646					57				17		0		0	

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Estimated Annual Energy Usage - EMS Improvements

Building: Oak Hill Middle School		Proposed	
Unit #: UV-B	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Classrooms	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: Unit Vent	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	D	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	1.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	0.1 kW
12 M - 8 AM	Occupied	57	0	0	17	57	Cooling	0.0 kW
8 AM - 4 PM	Occupied	171	0	0	37	171		
4 PM - 12 AM	Occupied	11	0	0	3	11		
All	Unoccupied	0	0	0	0	0		
Totals		239	0	0	57	239	Total	0.1 kW

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Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: UV-B
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	13.60	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	12.61	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	11.62	0
80 / 84	1	0%	77%	100%	0.1	0.0	0.1	0	0	0	0.0	0	10.63	0
75 / 79	6	0%	68%	100%	0.1	0.0	0.1	1	0	0	0.0	0	9.64	0
70 / 74	26	0%	59%	100%	0.1	0.0	0.1	2	0	0	0.0	0	8.65	0
65 / 69	49	0%	50%	100%	0.1	0.0	0.1	4	0	0	0.0	0	8.25	0
60 / 64	58	0%	41%	100%	0.1	0.0	0.1	5	0	0	0.0	0	8.25	0
55 / 59	60	0%	32%	100%	0.1	0.0	0.1	5	0	0	0.0	0	8.25	0
50 / 54	56	0%	24%	100%	0.1	0.0	0.1	5	6	0	0.0	0	8.25	0
45 / 49	54	17%	20%	100%	0.1	0.0	0.1	5	25	0	0.0	0	8.25	0
40 / 44	53	25%	20%	100%	0.1	0.0	0.1	5	31	1	0.0	0	8.25	0
35 / 39	61	33%	20%	100%	0.1	0.0	0.1	5	38	2	0.0	0	8.25	0
30 / 34	69	41%	20%	100%	0.1	0.0	0.1	6	45	3	0.0	0	8.25	0
25 / 29	48	49%	20%	100%	0.1	0.0	0.1	4	52	3	0.0	0	8.25	0
20 / 24	36	57%	20%	100%	0.1	0.0	0.1	3	59	2	0.0	0	8.25	0
15 / 19	24	65%	20%	100%	0.1	0.0	0.1	2	67	2	0.0	0	8.25	0
10 / 14	18	73%	20%	100%	0.1	0.0	0.1	2	74	2	0.0	0	8.25	0
5 / 9	14	81%	20%	100%	0.1	0.0	0.1	1	81	1	0.0	0	8.25	0
0 / 4	8	89%	20%	100%	0.1	0.0	0.1	1	88	1	0.0	0	8.25	0
-5 / -1	3	97%	20%	100%	0.1	0.0	0.1	0	95	0	0.0	0	8.25	0
-10 / -6	2	100%	20%	100%	0.1	0.0	0.1	0	100	0	0.0	0	8.25	0
-15 / -11	1	100%	20%	100%	0.1	0.0	0.1	0	103	0	0.0	0	8.25	0
-20 / -16	0	100%	20%	100%	0.1	0.0	0.1	0	107	0	0.0	0	8.25	0
	646							57		17		0		0

NORESCO

Energy Savings Analysis - EMS Improvements

Building: Oak Hill Middle School		Existing	Proposed	
Unit #: UV-C	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	227	0	0	6	227	Fans	0.4 kW
8 AM - 4 PM	Occupied	775	0	0	15	775	Cooling	0.0 kW
4 PM - 12 AM	Occupied	44	0	0	1	44	Total	0.4 kW
All	Unoccupied	0	0	0	0	0		
Totals		1,046	0	0	22	1,046		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	227	0	0	6	227	Fans	0.4 kW
8 AM - 4 PM	Occupied	684	0	0	13	684	Cooling	0.0 kW
4 PM - 12 AM	Occupied	44	0	0	1	44	Total	0.4 kW
All	Unoccupied	0	0	0	0	0		
Totals		954	0	0	20	954		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	0	0	0	0	0	Fans	0.0 kW
8 AM - 4 PM	Occupied	91	0	0	2	91	Cooling	0.0 kW
4 PM - 12 AM	Occupied	0	0	0	0	0	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		91	0	0	2	91		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: UV-C
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	13.60	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	12.61	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	11.62	0
80 / 84	1	0%	77%	100%	0.4	0.0	0.4	0	0	0	0.0	0	10.63	0
75 / 79	6	0%	68%	100%	0.4	0.0	0.4	2	0	0	0.0	0	9.64	0
70 / 74	26	0%	59%	100%	0.4	0.0	0.4	9	0	0	0.0	0	8.65	0
65 / 69	49	0%	50%	100%	0.4	0.0	0.4	17	0	0	0.0	0	8.25	0
60 / 64	58	0%	41%	100%	0.4	0.0	0.4	20	0	0	0.0	0	8.25	0
55 / 59	60	0%	32%	100%	0.4	0.0	0.4	21	0	0	0.0	0	8.25	0
50 / 54	56	0%	24%	100%	0.4	0.0	0.4	20	0	0	0.0	0	8.25	0
45 / 49	54	17%	20%	100%	0.4	0.0	0.4	19	8	0	0.0	0	8.25	0
40 / 44	53	25%	20%	100%	0.4	0.0	0.4	19	11	0	0.0	0	8.25	0
35 / 39	61	33%	20%	100%	0.4	0.0	0.4	21	14	1	0.0	0	8.25	0
30 / 34	69	41%	20%	100%	0.4	0.0	0.4	24	16	1	0.0	0	8.25	0
25 / 29	48	49%	20%	100%	0.4	0.0	0.4	17	19	1	0.0	0	8.25	0
20 / 24	36	57%	20%	100%	0.4	0.0	0.4	13	22	1	0.0	0	8.25	0
15 / 19	24	65%	20%	100%	0.4	0.0	0.4	8	25	1	0.0	0	8.25	0
10 / 14	18	73%	20%	100%	0.4	0.0	0.4	6	27	1	0.0	0	8.25	0
5 / 9	14	81%	20%	100%	0.4	0.0	0.4	5	30	1	0.0	0	8.25	0
0 / 4	8	89%	20%	100%	0.4	0.0	0.4	3	33	0	0.0	0	8.25	0
-5 / -1	3	97%	20%	100%	0.4	0.0	0.4	1	36	0	0.0	0	8.25	0
-10 / -6	2	100%	20%	100%	0.4	0.0	0.4	1	37	0	0.0	0	8.25	0
-15 / -11	1	100%	20%	100%	0.4	0.0	0.4	0	38	0	0.0	0	8.25	0
-20 / -16	0	100%	20%	100%	0.4	0.0	0.4	0	39	0	0.0	0	8.25	0
646					227				6		0			

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Estimated Annual Energy Usage - EMS Improvements

Building: Oak Hill Middle School		Proposed	
Unit #: UV-C	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Classrooms	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: Unit Vent	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	D	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	1.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	0.4 kW
12 M - 8 AM	Occupied	227	0	0	6	227	Cooling	0.0 kW
8 AM - 4 PM	Occupied	684	0	0	13	684		
4 PM - 12 AM	Occupied	44	0	0	1	44		
All	Unoccupied	0	0	0	0	0		
Totals		954	0	0	20	954	Total	0.4 kW

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Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: UV-C
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	13.60	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	12.61	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	11.62	0
80 / 84	1	0%	77%	100%	0.4	0.0	0.4	0	0	0	0.0	0	10.63	0
75 / 79	6	0%	68%	100%	0.4	0.0	0.4	2	0	0	0.0	0	9.64	0
70 / 74	26	0%	59%	100%	0.4	0.0	0.4	9	0	0	0.0	0	8.65	0
65 / 69	49	0%	50%	100%	0.4	0.0	0.4	17	0	0	0.0	0	8.25	0
60 / 64	58	0%	41%	100%	0.4	0.0	0.4	20	0	0	0.0	0	8.25	0
55 / 59	60	0%	32%	100%	0.4	0.0	0.4	21	0	0	0.0	0	8.25	0
50 / 54	56	0%	24%	100%	0.4	0.0	0.4	20	0	0	0.0	0	8.25	0
45 / 49	54	17%	20%	100%	0.4	0.0	0.4	19	8	0	0.0	0	8.25	0
40 / 44	53	25%	20%	100%	0.4	0.0	0.4	19	11	0	0.0	0	8.25	0
35 / 39	61	33%	20%	100%	0.4	0.0	0.4	21	14	1	0.0	0	8.25	0
30 / 34	69	41%	20%	100%	0.4	0.0	0.4	24	16	1	0.0	0	8.25	0
25 / 29	48	49%	20%	100%	0.4	0.0	0.4	17	19	1	0.0	0	8.25	0
20 / 24	36	57%	20%	100%	0.4	0.0	0.4	13	22	1	0.0	0	8.25	0
15 / 19	24	65%	20%	100%	0.4	0.0	0.4	8	25	1	0.0	0	8.25	0
10 / 14	18	73%	20%	100%	0.4	0.0	0.4	6	27	1	0.0	0	8.25	0
5 / 9	14	81%	20%	100%	0.4	0.0	0.4	5	30	1	0.0	0	8.25	0
0 / 4	8	89%	20%	100%	0.4	0.0	0.4	3	33	0	0.0	0	8.25	0
-5 / -1	3	97%	20%	100%	0.4	0.0	0.4	1	36	0	0.0	0	8.25	0
-10 / -6	2	100%	20%	100%	0.4	0.0	0.4	1	37	0	0.0	0	8.25	0
-15 / -11	1	100%	20%	100%	0.4	0.0	0.4	0	38	0	0.0	0	8.25	0
-20 / -16	0	100%	20%	100%	0.4	0.0	0.4	0	39	0	0.0	0	8.25	0
	646							227		6		0		0

NORESCO

Energy Savings Analysis - EMS Improvements

Building: Oak Hill Middle School		Existing	Proposed	
Unit #: UV-D	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	227	0	0	8	227	Fans	0.4 kW
8 AM - 4 PM	Occupied	775	0	0	19	775	Cooling	0.0 kW
4 PM - 12 AM	Occupied	44	0	0	1	44	Total	0.4 kW
All	Unoccupied	0	0	0	0	0		
Totals		1,046	0	0	29	1,046		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	227	0	0	8	227	Fans	0.4 kW
8 AM - 4 PM	Occupied	684	0	0	17	684	Cooling	0.0 kW
4 PM - 12 AM	Occupied	44	0	0	1	44	Total	0.4 kW
All	Unoccupied	0	0	0	0	0		
Totals		954	0	0	26	954		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	0	0	0	0	0	Fans	0.0 kW
8 AM - 4 PM	Occupied	91	0	0	2	91	Cooling	0.0 kW
4 PM - 12 AM	Occupied	0	0	0	0	0	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		91	0	0	2	91		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: UV-D
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	13.60	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	12.61	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	11.62	0
80 / 84	1	0%	77%	100%	0.4	0.0	0.4	0	0	0	0.0	0	10.63	0
75 / 79	6	0%	68%	100%	0.4	0.0	0.4	2	0	0	0.0	0	9.64	0
70 / 74	26	0%	59%	100%	0.4	0.0	0.4	9	0	0	0.0	0	8.65	0
65 / 69	49	0%	50%	100%	0.4	0.0	0.4	17	0	0	0.0	0	8.25	0
60 / 64	58	0%	41%	100%	0.4	0.0	0.4	20	0	0	0.0	0	8.25	0
55 / 59	60	0%	32%	100%	0.4	0.0	0.4	21	0	0	0.0	0	8.25	0
50 / 54	56	0%	24%	100%	0.4	0.0	0.4	20	0	0	0.0	0	8.25	0
45 / 49	54	17%	20%	100%	0.4	0.0	0.4	19	11	0	0.0	0	8.25	0
40 / 44	53	25%	20%	100%	0.4	0.0	0.4	19	14	0	0.0	0	8.25	0
35 / 39	61	33%	20%	100%	0.4	0.0	0.4	21	17	1	0.0	0	8.25	0
30 / 34	69	41%	20%	100%	0.4	0.0	0.4	24	21	1	0.0	0	8.25	0
25 / 29	48	49%	20%	100%	0.4	0.0	0.4	17	25	1	0.0	0	8.25	0
20 / 24	36	57%	20%	100%	0.4	0.0	0.4	13	28	1	0.0	0	8.25	0
15 / 19	24	65%	20%	100%	0.4	0.0	0.4	8	32	1	0.0	0	8.25	0
10 / 14	18	73%	20%	100%	0.4	0.0	0.4	6	35	1	0.0	0	8.25	0
5 / 9	14	81%	20%	100%	0.4	0.0	0.4	5	39	1	0.0	0	8.25	0
0 / 4	8	89%	20%	100%	0.4	0.0	0.4	3	43	0	0.0	0	8.25	0
-5 / -1	3	97%	20%	100%	0.4	0.0	0.4	1	46	0	0.0	0	8.25	0
-10 / -6	2	100%	20%	100%	0.4	0.0	0.4	1	48	0	0.0	0	8.25	0
-15 / -11	1	100%	20%	100%	0.4	0.0	0.4	0	49	0	0.0	0	8.25	0
-20 / -16	0	100%	20%	100%	0.4	0.0	0.4	0	50	0	0.0	0	8.25	0
646					227				8		0			

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Estimated Annual Energy Usage - EMS Improvements

Building: Oak Hill Middle School		Proposed	
Unit #: UV-D	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Classrooms	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: Unit Vent	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	D	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	1.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	0.4 kW
12 M - 8 AM	Occupied	227	0	0	8	227	Cooling	0.0 kW
8 AM - 4 PM	Occupied	684	0	0	17	684		
4 PM - 12 AM	Occupied	44	0	0	1	44		
All	Unoccupied	0	0	0	0	0		
Totals		954	0	0	26	954	Total	0.4 kW

NORESCO

Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: UV-D
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	13.60	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	12.61	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	11.62	0
80 / 84	1	0%	77%	100%	0.4	0.0	0.4	0	0	0	0.0	0	10.63	0
75 / 79	6	0%	68%	100%	0.4	0.0	0.4	2	0	0	0.0	0	9.64	0
70 / 74	26	0%	59%	100%	0.4	0.0	0.4	9	0	0	0.0	0	8.65	0
65 / 69	49	0%	50%	100%	0.4	0.0	0.4	17	0	0	0.0	0	8.25	0
60 / 64	58	0%	41%	100%	0.4	0.0	0.4	20	0	0	0.0	0	8.25	0
55 / 59	60	0%	32%	100%	0.4	0.0	0.4	21	0	0	0.0	0	8.25	0
50 / 54	56	0%	24%	100%	0.4	0.0	0.4	20	0	0	0.0	0	8.25	0
45 / 49	54	17%	20%	100%	0.4	0.0	0.4	19	11	0	0.0	0	8.25	0
40 / 44	53	25%	20%	100%	0.4	0.0	0.4	19	14	0	0.0	0	8.25	0
35 / 39	61	33%	20%	100%	0.4	0.0	0.4	21	17	1	0.0	0	8.25	0
30 / 34	69	41%	20%	100%	0.4	0.0	0.4	24	21	1	0.0	0	8.25	0
25 / 29	48	49%	20%	100%	0.4	0.0	0.4	17	25	1	0.0	0	8.25	0
20 / 24	36	57%	20%	100%	0.4	0.0	0.4	13	28	1	0.0	0	8.25	0
15 / 19	24	65%	20%	100%	0.4	0.0	0.4	8	32	1	0.0	0	8.25	0
10 / 14	18	73%	20%	100%	0.4	0.0	0.4	6	35	1	0.0	0	8.25	0
5 / 9	14	81%	20%	100%	0.4	0.0	0.4	5	39	1	0.0	0	8.25	0
0 / 4	8	89%	20%	100%	0.4	0.0	0.4	3	43	0	0.0	0	8.25	0
-5 / -1	3	97%	20%	100%	0.4	0.0	0.4	1	46	0	0.0	0	8.25	0
-10 / -6	2	100%	20%	100%	0.4	0.0	0.4	1	48	0	0.0	0	8.25	0
-15 / -11	1	100%	20%	100%	0.4	0.0	0.4	0	49	0	0.0	0	8.25	0
-20 / -16	0	100%	20%	100%	0.4	0.0	0.4	0	50	0	0.0	0	8.25	0
	646							227		8		0		0

NORESCO

Energy Savings Analysis - EMS Improvements

Building: Oak Hill Middle School		Existing	Proposed	
Unit #: UV-E	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	227	0	0	14	227	Fans	0.4 kW
8 AM - 4 PM	Occupied	775	0	0	37	775	Cooling	0.0 kW
4 PM - 12 AM	Occupied	44	0	0	2	44	Total	0.4 kW
All	Unoccupied	0	0	0	0	0		
Totals		1,046	0	0	54	1,046		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	227	0	0	14	227	Fans	0.4 kW
8 AM - 4 PM	Occupied	684	0	0	33	684	Cooling	0.0 kW
4 PM - 12 AM	Occupied	44	0	0	2	44	Total	0.4 kW
All	Unoccupied	0	0	0	0	0		
Totals		954	0	0	50	954		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	0	0	0	0	0	Fans	0.0 kW
8 AM - 4 PM	Occupied	91	0	0	4	91	Cooling	0.0 kW
4 PM - 12 AM	Occupied	0	0	0	0	0	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		91	0	0	4	91		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: UV-E
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
80 / 84	1	0%	77%	100%	0.4	0.0	0.4	0	0	0	0.0	0	####	0
75 / 79	6	0%	68%	100%	0.4	0.0	0.4	2	0	0	0.0	0	9.64	0
70 / 74	26	0%	59%	100%	0.4	0.0	0.4	9	0	0	0.0	0	8.65	0
65 / 69	49	0%	50%	100%	0.4	0.0	0.4	17	0	0	0.0	0	8.25	0
60 / 64	58	0%	41%	100%	0.4	0.0	0.4	20	0	0	0.0	0	8.25	0
55 / 59	60	0%	32%	100%	0.4	0.0	0.4	21	1	0	0.0	0	8.25	0
50 / 54	56	0%	24%	100%	0.4	0.0	0.4	20	6	0	0.0	0	8.25	0
45 / 49	54	17%	20%	100%	0.4	0.0	0.4	19	22	0	0.0	0	8.25	0
40 / 44	53	25%	20%	100%	0.4	0.0	0.4	19	27	1	0.0	0	8.25	0
35 / 39	61	33%	20%	100%	0.4	0.0	0.4	21	33	1	0.0	0	8.25	0
30 / 34	69	41%	20%	100%	0.4	0.0	0.4	24	39	2	0.0	0	8.25	0
25 / 29	48	49%	20%	100%	0.4	0.0	0.4	17	46	2	0.0	0	8.25	0
20 / 24	36	57%	20%	100%	0.4	0.0	0.4	13	52	2	0.0	0	8.25	0
15 / 19	24	65%	20%	100%	0.4	0.0	0.4	8	58	2	0.0	0	8.25	0
10 / 14	18	73%	20%	100%	0.4	0.0	0.4	6	64	1	0.0	0	8.25	0
5 / 9	14	81%	20%	100%	0.4	0.0	0.4	5	71	1	0.0	0	8.25	0
0 / 4	8	89%	20%	100%	0.4	0.0	0.4	3	77	1	0.0	0	8.25	0
-5 / -1	3	97%	20%	100%	0.4	0.0	0.4	1	83	0	0.0	0	8.25	0
-10 / -6	2	100%	20%	100%	0.4	0.0	0.4	1	87	0	0.0	0	8.25	0
-15 / -11	1	100%	20%	100%	0.4	0.0	0.4	0	90	0	0.0	0	8.25	0
-20 / -16	0	100%	20%	100%	0.4	0.0	0.4	0	93	0	0.0	0	8.25	0
646					227				14		0		0	

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Estimated Annual Energy Usage - EMS Improvements

Building: Oak Hill Middle School		Proposed	
Unit #: UV-E	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Classrooms	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: Unit Vent	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	D	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	1.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	0.4 kW
12 M - 8 AM	Occupied	227	0	0	14	227	Cooling	0.0 kW
8 AM - 4 PM	Occupied	684	0	0	33	684		
4 PM - 12 AM	Occupied	44	0	0	2	44		
All	Unoccupied	0	0	0	0	0		
Totals		954	0	0	50	954	Total	0.4 kW

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Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: UV-E
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	13.60	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	12.61	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	11.62	0
80 / 84	1	0%	77%	100%	0.4	0.0	0.4	0	0	0	0.0	0	10.63	0
75 / 79	6	0%	68%	100%	0.4	0.0	0.4	2	0	0	0.0	0	9.64	0
70 / 74	26	0%	59%	100%	0.4	0.0	0.4	9	0	0	0.0	0	8.65	0
65 / 69	49	0%	50%	100%	0.4	0.0	0.4	17	0	0	0.0	0	8.25	0
60 / 64	58	0%	41%	100%	0.4	0.0	0.4	20	0	0	0.0	0	8.25	0
55 / 59	60	0%	32%	100%	0.4	0.0	0.4	21	1	0	0.0	0	8.25	0
50 / 54	56	0%	24%	100%	0.4	0.0	0.4	20	6	0	0.0	0	8.25	0
45 / 49	54	17%	20%	100%	0.4	0.0	0.4	19	22	0	0.0	0	8.25	0
40 / 44	53	25%	20%	100%	0.4	0.0	0.4	19	27	1	0.0	0	8.25	0
35 / 39	61	33%	20%	100%	0.4	0.0	0.4	21	33	1	0.0	0	8.25	0
30 / 34	69	41%	20%	100%	0.4	0.0	0.4	24	39	2	0.0	0	8.25	0
25 / 29	48	49%	20%	100%	0.4	0.0	0.4	17	46	2	0.0	0	8.25	0
20 / 24	36	57%	20%	100%	0.4	0.0	0.4	13	52	2	0.0	0	8.25	0
15 / 19	24	65%	20%	100%	0.4	0.0	0.4	8	58	2	0.0	0	8.25	0
10 / 14	18	73%	20%	100%	0.4	0.0	0.4	6	64	1	0.0	0	8.25	0
5 / 9	14	81%	20%	100%	0.4	0.0	0.4	5	71	1	0.0	0	8.25	0
0 / 4	8	89%	20%	100%	0.4	0.0	0.4	3	77	1	0.0	0	8.25	0
-5 / -1	3	97%	20%	100%	0.4	0.0	0.4	1	83	0	0.0	0	8.25	0
-10 / -6	2	100%	20%	100%	0.4	0.0	0.4	1	87	0	0.0	0	8.25	0
-15 / -11	1	100%	20%	100%	0.4	0.0	0.4	0	90	0	0.0	0	8.25	0
-20 / -16	0	100%	20%	100%	0.4	0.0	0.4	0	93	0	0.0	0	8.25	0
	646							227		14		0		0

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Energy Savings Analysis - EMS Improvements

Building: Oak Hill Middle School		Existing	Proposed	
Unit #: UV-F	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	227	0	0	16	227	Fans	0.4 kW
8 AM - 4 PM	Occupied	775	0	0	40	775	Cooling	0.0 kW
4 PM - 12 AM	Occupied	44	0	0	3	44	Total	0.4 kW
All	Unoccupied	0	0	0	0	0		
Totals		1,046	0	0	58	1,046		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	227	0	0	16	227	Fans	0.4 kW
8 AM - 4 PM	Occupied	684	0	0	35	684	Cooling	0.0 kW
4 PM - 12 AM	Occupied	44	0	0	3	44	Total	0.4 kW
All	Unoccupied	0	0	0	0	0		
Totals		954	0	0	54	954		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	0	0	0	0	0	Fans	0.0 kW
8 AM - 4 PM	Occupied	91	0	0	5	91	Cooling	0.0 kW
4 PM - 12 AM	Occupied	0	0	0	0	0	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		91	0	0	5	91		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: UV-F
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
80 / 84	1	0%	77%	100%	0.4	0.0	0.4	0	0	0	0.0	0	####	0
75 / 79	6	0%	68%	100%	0.4	0.0	0.4	2	0	0	0.0	0	9.64	0
70 / 74	26	0%	59%	100%	0.4	0.0	0.4	9	0	0	0.0	0	8.65	0
65 / 69	49	0%	50%	100%	0.4	0.0	0.4	17	0	0	0.0	0	8.25	0
60 / 64	58	0%	41%	100%	0.4	0.0	0.4	20	0	0	0.0	0	8.25	0
55 / 59	60	0%	32%	100%	0.4	0.0	0.4	21	0	0	0.0	0	8.25	0
50 / 54	56	0%	24%	100%	0.4	0.0	0.4	20	5	0	0.0	0	8.25	0
45 / 49	54	17%	20%	100%	0.4	0.0	0.4	19	23	0	0.0	0	8.25	0
40 / 44	53	25%	20%	100%	0.4	0.0	0.4	19	30	1	0.0	0	8.25	0
35 / 39	61	33%	20%	100%	0.4	0.0	0.4	21	36	1	0.0	0	8.25	0
30 / 34	69	41%	20%	100%	0.4	0.0	0.4	24	43	3	0.0	0	8.25	0
25 / 29	48	49%	20%	100%	0.4	0.0	0.4	17	50	2	0.0	0	8.25	0
20 / 24	36	57%	20%	100%	0.4	0.0	0.4	13	57	2	0.0	0	8.25	0
15 / 19	24	65%	20%	100%	0.4	0.0	0.4	8	63	2	0.0	0	8.25	0
10 / 14	18	73%	20%	100%	0.4	0.0	0.4	6	70	2	0.0	0	8.25	0
5 / 9	14	81%	20%	100%	0.4	0.0	0.4	5	77	1	0.0	0	8.25	0
0 / 4	8	89%	20%	100%	0.4	0.0	0.4	3	84	1	0.0	0	8.25	0
-5 / -1	3	97%	20%	100%	0.4	0.0	0.4	1	91	0	0.0	0	8.25	0
-10 / -6	2	100%	20%	100%	0.4	0.0	0.4	1	95	0	0.0	0	8.25	0
-15 / -11	1	100%	20%	100%	0.4	0.0	0.4	0	98	0	0.0	0	8.25	0
-20 / -16	0	100%	20%	100%	0.4	0.0	0.4	0	101	0	0.0	0	8.25	0
	646							227		16		0		0

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Estimated Annual Energy Usage - EMS Improvements

Building: Oak Hill Middle School		Proposed	
Unit #: UV-F	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Classrooms	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: Unit Vent	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	D	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	1.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	0.4 kW
12 M - 8 AM	Occupied	227	0	0	16	227	Cooling	0.0 kW
8 AM - 4 PM	Occupied	684	0	0	35	684		
4 PM - 12 AM	Occupied	44	0	0	3	44		
All	Unoccupied	0	0	0	0	0		
Totals		954	0	0	54	954	Total	0.4 kW

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Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: UV-F
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton- Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	13.60	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	12.61	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	11.62	0
80 / 84	1	0%	77%	100%	0.4	0.0	0.4	0	0	0	0.0	0	10.63	0
75 / 79	6	0%	68%	100%	0.4	0.0	0.4	2	0	0	0.0	0	9.64	0
70 / 74	26	0%	59%	100%	0.4	0.0	0.4	9	0	0	0.0	0	8.65	0
65 / 69	49	0%	50%	100%	0.4	0.0	0.4	17	0	0	0.0	0	8.25	0
60 / 64	58	0%	41%	100%	0.4	0.0	0.4	20	0	0	0.0	0	8.25	0
55 / 59	60	0%	32%	100%	0.4	0.0	0.4	21	0	0	0.0	0	8.25	0
50 / 54	56	0%	24%	100%	0.4	0.0	0.4	20	5	0	0.0	0	8.25	0
45 / 49	54	17%	20%	100%	0.4	0.0	0.4	19	23	0	0.0	0	8.25	0
40 / 44	53	25%	20%	100%	0.4	0.0	0.4	19	30	1	0.0	0	8.25	0
35 / 39	61	33%	20%	100%	0.4	0.0	0.4	21	36	1	0.0	0	8.25	0
30 / 34	69	41%	20%	100%	0.4	0.0	0.4	24	43	3	0.0	0	8.25	0
25 / 29	48	49%	20%	100%	0.4	0.0	0.4	17	50	2	0.0	0	8.25	0
20 / 24	36	57%	20%	100%	0.4	0.0	0.4	13	57	2	0.0	0	8.25	0
15 / 19	24	65%	20%	100%	0.4	0.0	0.4	8	63	2	0.0	0	8.25	0
10 / 14	18	73%	20%	100%	0.4	0.0	0.4	6	70	2	0.0	0	8.25	0
5 / 9	14	81%	20%	100%	0.4	0.0	0.4	5	77	1	0.0	0	8.25	0
0 / 4	8	89%	20%	100%	0.4	0.0	0.4	3	84	1	0.0	0	8.25	0
-5 / -1	3	97%	20%	100%	0.4	0.0	0.4	1	91	0	0.0	0	8.25	0
-10 / -6	2	100%	20%	100%	0.4	0.0	0.4	1	95	0	0.0	0	8.25	0
-15 / -11	1	100%	20%	100%	0.4	0.0	0.4	0	98	0	0.0	0	8.25	0
-20 / -16	0	100%	20%	100%	0.4	0.0	0.4	0	101	0	0.0	0	8.25	0
646								227		16		0		0

NORESCO

Energy Savings Analysis - EMS Improvements

Building: Oak Hill Middle School		Existing	Proposed	
Unit #: UV-G	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	227	0	0	22	227	Fans	0.4 kW
8 AM - 4 PM	Occupied	775	0	0	56	775	Cooling	0.0 kW
4 PM - 12 AM	Occupied	44	0	0	4	44	Total	0.4 kW
All	Unoccupied	0	0	0	0	0		
Totals		1,046	0	0	82	1,046		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	227	0	0	22	227	Fans	0.4 kW
8 AM - 4 PM	Occupied	684	0	0	50	684	Cooling	0.0 kW
4 PM - 12 AM	Occupied	44	0	0	4	44	Total	0.4 kW
All	Unoccupied	0	0	0	0	0		
Totals		954	0	0	76	954		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	0	0	0	0	0	Fans	0.0 kW
8 AM - 4 PM	Occupied	91	0	0	7	91	Cooling	0.0 kW
4 PM - 12 AM	Occupied	0	0	0	0	0	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		91	0	0	7	91		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: UV-G
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
80 / 84	1	0%	77%	100%	0.4	0.0	0.4	0	0	0	0.0	0	####	0
75 / 79	6	0%	68%	100%	0.4	0.0	0.4	2	0	0	0.0	0	9.64	0
70 / 74	26	0%	59%	100%	0.4	0.0	0.4	9	0	0	0.0	0	8.65	0
65 / 69	49	0%	50%	100%	0.4	0.0	0.4	17	0	0	0.0	0	8.25	0
60 / 64	58	0%	41%	100%	0.4	0.0	0.4	20	0	0	0.0	0	8.25	0
55 / 59	60	0%	32%	100%	0.4	0.0	0.4	21	1	0	0.0	0	8.25	0
50 / 54	56	0%	24%	100%	0.4	0.0	0.4	20	8	0	0.0	0	8.25	0
45 / 49	54	17%	20%	100%	0.4	0.0	0.4	19	33	0	0.0	0	8.25	0
40 / 44	53	25%	20%	100%	0.4	0.0	0.4	19	42	1	0.0	0	8.25	0
35 / 39	61	33%	20%	100%	0.4	0.0	0.4	21	51	2	0.0	0	8.25	0
30 / 34	69	41%	20%	100%	0.4	0.0	0.4	24	60	4	0.0	0	8.25	0
25 / 29	48	49%	20%	100%	0.4	0.0	0.4	17	70	3	0.0	0	8.25	0
20 / 24	36	57%	20%	100%	0.4	0.0	0.4	13	79	3	0.0	0	8.25	0
15 / 19	24	65%	20%	100%	0.4	0.0	0.4	8	89	2	0.0	0	8.25	0
10 / 14	18	73%	20%	100%	0.4	0.0	0.4	6	98	2	0.0	0	8.25	0
5 / 9	14	81%	20%	100%	0.4	0.0	0.4	5	108	2	0.0	0	8.25	0
0 / 4	8	89%	20%	100%	0.4	0.0	0.4	3	118	1	0.0	0	8.25	0
-5 / -1	3	97%	20%	100%	0.4	0.0	0.4	1	127	0	0.0	0	8.25	0
-10 / -6	2	100%	20%	100%	0.4	0.0	0.4	1	133	0	0.0	0	8.25	0
-15 / -11	1	100%	20%	100%	0.4	0.0	0.4	0	138	0	0.0	0	8.25	0
-20 / -16	0	100%	20%	100%	0.4	0.0	0.4	0	142	0	0.0	0	8.25	0
646					227				22		0			

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Estimated Annual Energy Usage - EMS Improvements

Building: Oak Hill Middle School		Proposed	
Unit #: UV-G	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Classrooms	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: Unit Vent	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	D	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	1.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	0.4 kW
12 M - 8 AM	Occupied	227	0	0	22	227	Cooling	0.0 kW
8 AM - 4 PM	Occupied	684	0	0	50	684		
4 PM - 12 AM	Occupied	44	0	0	4	44		
All	Unoccupied	0	0	0	0	0		
Totals		954	0	0	76	954	Total	0.4 kW

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Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: UV-G
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	13.60	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	12.61	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	11.62	0
80 / 84	1	0%	77%	100%	0.4	0.0	0.4	0	0	0	0.0	0	10.63	0
75 / 79	6	0%	68%	100%	0.4	0.0	0.4	2	0	0	0.0	0	9.64	0
70 / 74	26	0%	59%	100%	0.4	0.0	0.4	9	0	0	0.0	0	8.65	0
65 / 69	49	0%	50%	100%	0.4	0.0	0.4	17	0	0	0.0	0	8.25	0
60 / 64	58	0%	41%	100%	0.4	0.0	0.4	20	0	0	0.0	0	8.25	0
55 / 59	60	0%	32%	100%	0.4	0.0	0.4	21	1	0	0.0	0	8.25	0
50 / 54	56	0%	24%	100%	0.4	0.0	0.4	20	8	0	0.0	0	8.25	0
45 / 49	54	17%	20%	100%	0.4	0.0	0.4	19	33	0	0.0	0	8.25	0
40 / 44	53	25%	20%	100%	0.4	0.0	0.4	19	42	1	0.0	0	8.25	0
35 / 39	61	33%	20%	100%	0.4	0.0	0.4	21	51	2	0.0	0	8.25	0
30 / 34	69	41%	20%	100%	0.4	0.0	0.4	24	60	4	0.0	0	8.25	0
25 / 29	48	49%	20%	100%	0.4	0.0	0.4	17	70	3	0.0	0	8.25	0
20 / 24	36	57%	20%	100%	0.4	0.0	0.4	13	79	3	0.0	0	8.25	0
15 / 19	24	65%	20%	100%	0.4	0.0	0.4	8	89	2	0.0	0	8.25	0
10 / 14	18	73%	20%	100%	0.4	0.0	0.4	6	98	2	0.0	0	8.25	0
5 / 9	14	81%	20%	100%	0.4	0.0	0.4	5	108	2	0.0	0	8.25	0
0 / 4	8	89%	20%	100%	0.4	0.0	0.4	3	118	1	0.0	0	8.25	0
-5 / -1	3	97%	20%	100%	0.4	0.0	0.4	1	127	0	0.0	0	8.25	0
-10 / -6	2	100%	20%	100%	0.4	0.0	0.4	1	133	0	0.0	0	8.25	0
-15 / -11	1	100%	20%	100%	0.4	0.0	0.4	0	138	0	0.0	0	8.25	0
-20 / -16	0	100%	20%	100%	0.4	0.0	0.4	0	142	0	0.0	0	8.25	0
646					227				22		0			

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Energy Savings Analysis - EMS Improvements

Building: Oak Hill Middle School		Existing	Proposed	
Unit #: UV-H	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Classrooms	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Unit Vent	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	1.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	227	0	0	6	227	Fans	0.4 kW
8 AM - 4 PM	Occupied	775	0	0	14	775	Cooling	0.0 kW
4 PM - 12 AM	Occupied	44	0	0	1	44	Total	0.4 kW
All	Unoccupied	0	0	0	0	0		
Totals		1,046	0	0	21	1,046		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	227	0	0	6	227	Fans	0.4 kW
8 AM - 4 PM	Occupied	684	0	0	12	684	Cooling	0.0 kW
4 PM - 12 AM	Occupied	44	0	0	1	44	Total	0.4 kW
All	Unoccupied	0	0	0	0	0		
Totals		954	0	0	19	954		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	0	0	0	0	0	Fans	0.0 kW
8 AM - 4 PM	Occupied	91	0	0	2	91	Cooling	0.0 kW
4 PM - 12 AM	Occupied	0	0	0	0	0	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		91	0	0	2	91		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: UV-H
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	13.60	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	12.61	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	11.62	0
80 / 84	1	0%	77%	100%	0.4	0.0	0.4	0	0	0	0.0	0	10.63	0
75 / 79	6	0%	68%	100%	0.4	0.0	0.4	2	0	0	0.0	0	9.64	0
70 / 74	26	0%	59%	100%	0.4	0.0	0.4	9	0	0	0.0	0	8.65	0
65 / 69	49	0%	50%	100%	0.4	0.0	0.4	17	0	0	0.0	0	8.25	0
60 / 64	58	0%	41%	100%	0.4	0.0	0.4	20	0	0	0.0	0	8.25	0
55 / 59	60	0%	32%	100%	0.4	0.0	0.4	21	0	0	0.0	0	8.25	0
50 / 54	56	0%	24%	100%	0.4	0.0	0.4	20	0	0	0.0	0	8.25	0
45 / 49	54	17%	20%	100%	0.4	0.0	0.4	19	8	0	0.0	0	8.25	0
40 / 44	53	25%	20%	100%	0.4	0.0	0.4	19	10	0	0.0	0	8.25	0
35 / 39	61	33%	20%	100%	0.4	0.0	0.4	21	13	1	0.0	0	8.25	0
30 / 34	69	41%	20%	100%	0.4	0.0	0.4	24	15	1	0.0	0	8.25	0
25 / 29	48	49%	20%	100%	0.4	0.0	0.4	17	18	1	0.0	0	8.25	0
20 / 24	36	57%	20%	100%	0.4	0.0	0.4	13	20	1	0.0	0	8.25	0
15 / 19	24	65%	20%	100%	0.4	0.0	0.4	8	23	1	0.0	0	8.25	0
10 / 14	18	73%	20%	100%	0.4	0.0	0.4	6	26	1	0.0	0	8.25	0
5 / 9	14	81%	20%	100%	0.4	0.0	0.4	5	28	0	0.0	0	8.25	0
0 / 4	8	89%	20%	100%	0.4	0.0	0.4	3	31	0	0.0	0	8.25	0
-5 / -1	3	97%	20%	100%	0.4	0.0	0.4	1	33	0	0.0	0	8.25	0
-10 / -6	2	100%	20%	100%	0.4	0.0	0.4	1	35	0	0.0	0	8.25	0
-15 / -11	1	100%	20%	100%	0.4	0.0	0.4	0	36	0	0.0	0	8.25	0
-20 / -16	0	100%	20%	100%	0.4	0.0	0.4	0	36	0	0.0	0	8.25	0
	646							227		6		0		0

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Estimated Annual Energy Usage - EMS Improvements

Building: Oak Hill Middle School		Proposed	
Unit #: UV-H	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Classrooms	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: Unit Vent	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	D	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	1.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	0.4 kW
12 M - 8 AM	Occupied	227	0	0	6	227	Cooling	0.0 kW
8 AM - 4 PM	Occupied	684	0	0	12	684		
4 PM - 12 AM	Occupied	44	0	0	1	44		
All	Unoccupied	0	0	0	0	0		
Totals		954	0	0	19	954	Total	0.4 kW

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Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: UV-H
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	13.60	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	12.61	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	11.62	0
80 / 84	1	0%	77%	100%	0.4	0.0	0.4	0	0	0	0.0	0	10.63	0
75 / 79	6	0%	68%	100%	0.4	0.0	0.4	2	0	0	0.0	0	9.64	0
70 / 74	26	0%	59%	100%	0.4	0.0	0.4	9	0	0	0.0	0	8.65	0
65 / 69	49	0%	50%	100%	0.4	0.0	0.4	17	0	0	0.0	0	8.25	0
60 / 64	58	0%	41%	100%	0.4	0.0	0.4	20	0	0	0.0	0	8.25	0
55 / 59	60	0%	32%	100%	0.4	0.0	0.4	21	0	0	0.0	0	8.25	0
50 / 54	56	0%	24%	100%	0.4	0.0	0.4	20	0	0	0.0	0	8.25	0
45 / 49	54	17%	20%	100%	0.4	0.0	0.4	19	8	0	0.0	0	8.25	0
40 / 44	53	25%	20%	100%	0.4	0.0	0.4	19	10	0	0.0	0	8.25	0
35 / 39	61	33%	20%	100%	0.4	0.0	0.4	21	13	1	0.0	0	8.25	0
30 / 34	69	41%	20%	100%	0.4	0.0	0.4	24	15	1	0.0	0	8.25	0
25 / 29	48	49%	20%	100%	0.4	0.0	0.4	17	18	1	0.0	0	8.25	0
20 / 24	36	57%	20%	100%	0.4	0.0	0.4	13	20	1	0.0	0	8.25	0
15 / 19	24	65%	20%	100%	0.4	0.0	0.4	8	23	1	0.0	0	8.25	0
10 / 14	18	73%	20%	100%	0.4	0.0	0.4	6	26	1	0.0	0	8.25	0
5 / 9	14	81%	20%	100%	0.4	0.0	0.4	5	28	0	0.0	0	8.25	0
0 / 4	8	89%	20%	100%	0.4	0.0	0.4	3	31	0	0.0	0	8.25	0
-5 / -1	3	97%	20%	100%	0.4	0.0	0.4	1	33	0	0.0	0	8.25	0
-10 / -6	2	100%	20%	100%	0.4	0.0	0.4	1	35	0	0.0	0	8.25	0
-15 / -11	1	100%	20%	100%	0.4	0.0	0.4	0	36	0	0.0	0	8.25	0
-20 / -16	0	100%	20%	100%	0.4	0.0	0.4	0	36	0	0.0	0	8.25	0
	646							227		6		0		0

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Energy Savings Analysis - EMS Improvements

Building: Oak Hill Middle School		Existing	Proposed	
Unit #: AHU-1	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Nurse's Suite	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: AHU w/ DX	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	8.0	8.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	454	78	82	7	536	Fans	0.7 kW
8 AM - 4 PM	Occupied	1,550	743	928	17	2,478	Cooling	2.0 kW
4 PM - 12 AM	Occupied	88	26	30	1	117	Total	2.7 kW
All	Unoccupied	0	0	0	0	0		
Totals		2,092	847	1,040	25	3,131		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	454	78	82	7	536	Fans	0.7 kW
8 AM - 4 PM	Occupied	1,367	656	818	15	2,186	Cooling	2.0 kW
4 PM - 12 AM	Occupied	88	26	30	1	117	Total	2.7 kW
All	Unoccupied	0	0	0	0	0		
Totals		1,909	759	930	23	2,839		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	0	0	0	0	0	Fans	0.0 kW
8 AM - 4 PM	Occupied	183	88	109	2	292	Cooling	0.0 kW
4 PM - 12 AM	Occupied	0	0	0	0	0	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		183	88	109	2	292		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: AHU-1
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.70	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.58	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.45	0
80 / 84	1	0%	77%	100%	0.5	0.2	0.7	0	0	0	1.1	1	1.33	1
75 / 79	6	0%	68%	100%	0.5	0.2	0.7	4	0	0	0.9	6	1.20	7
70 / 74	26	0%	59%	100%	0.5	0.2	0.7	19	0	0	0.7	20	1.08	21
65 / 69	49	0%	50%	100%	0.5	0.2	0.7	34	0	0	0.5	26	1.03	27
60 / 64	58	0%	41%	100%	0.5	0.2	0.7	41	0	0	0.3	18	1.03	19
55 / 59	60	0%	32%	100%	0.5	0.2	0.7	42	0	0	0.2	7	1.03	8
50 / 54	56	0%	24%	100%	0.5	0.2	0.7	39	1	0	0.0	0	1.03	0
45 / 49	54	17%	20%	100%	0.5	0.2	0.7	38	9	0	0.0	0	1.03	0
40 / 44	53	25%	20%	100%	0.5	0.2	0.7	37	12	0	0.0	0	1.03	0
35 / 39	61	33%	20%	100%	0.5	0.2	0.7	43	15	1	0.0	0	1.03	0
30 / 34	69	41%	20%	100%	0.5	0.2	0.7	48	18	1	0.0	0	1.03	0
25 / 29	48	49%	20%	100%	0.5	0.2	0.7	34	22	1	0.0	0	1.03	0
20 / 24	36	57%	20%	100%	0.5	0.2	0.7	25	25	1	0.0	0	1.03	0
15 / 19	24	65%	20%	100%	0.5	0.2	0.7	17	28	1	0.0	0	1.03	0
10 / 14	18	73%	20%	100%	0.5	0.2	0.7	13	31	1	0.0	0	1.03	0
5 / 9	14	81%	20%	100%	0.5	0.2	0.7	10	34	1	0.0	0	1.03	0
0 / 4	8	89%	20%	100%	0.5	0.2	0.7	6	37	0	0.0	0	1.03	0
-5 / -1	3	97%	20%	100%	0.5	0.2	0.7	2	41	0	0.0	0	1.03	0
-10 / -6	2	100%	20%	100%	0.5	0.2	0.7	1	42	0	0.0	0	1.03	0
-15 / -11	1	100%	20%	100%	0.5	0.2	0.7	0	44	0	0.0	0	1.03	0
-20 / -16	0	100%	20%	100%	0.5	0.2	0.7	0	45	0	0.0	0	1.03	0
646					454				7		78			

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Estimated Annual Energy Usage - EMS Improvements

Building: Oak Hill Middle School		Proposed	
Unit #: AHU-1	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Nurse's Suite	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: AHU w/ DX	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	D	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	8.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	0.7 kW
12 M - 8 AM	Occupied	454	78	82	7	536	Cooling	2.0 kW
8 AM - 4 PM	Occupied	1,367	656	818	15	2,186	Total	2.7 kW
4 PM - 12 AM	Occupied	88	26	30	1	117		
All	Unoccupied	0	0	0	0	0		
Totals		1,909	759	930	23	2,839		

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Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: AHU-1
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.70	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.58	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.45	0
80 / 84	1	0%	77%	100%	0.5	0.2	0.7	0	0	0	1.1	1	1.33	1
75 / 79	6	0%	68%	100%	0.5	0.2	0.7	4	0	0	0.9	6	1.20	7
70 / 74	26	0%	59%	100%	0.5	0.2	0.7	19	0	0	0.7	20	1.08	21
65 / 69	49	0%	50%	100%	0.5	0.2	0.7	34	0	0	0.5	26	1.03	27
60 / 64	58	0%	41%	100%	0.5	0.2	0.7	41	0	0	0.3	18	1.03	19
55 / 59	60	0%	32%	100%	0.5	0.2	0.7	42	0	0	0.2	7	1.03	8
50 / 54	56	0%	24%	100%	0.5	0.2	0.7	39	1	0	0.0	0	1.03	0
45 / 49	54	17%	20%	100%	0.5	0.2	0.7	38	9	0	0.0	0	1.03	0
40 / 44	53	25%	20%	100%	0.5	0.2	0.7	37	12	0	0.0	0	1.03	0
35 / 39	61	33%	20%	100%	0.5	0.2	0.7	43	15	1	0.0	0	1.03	0
30 / 34	69	41%	20%	100%	0.5	0.2	0.7	48	18	1	0.0	0	1.03	0
25 / 29	48	49%	20%	100%	0.5	0.2	0.7	34	22	1	0.0	0	1.03	0
20 / 24	36	57%	20%	100%	0.5	0.2	0.7	25	25	1	0.0	0	1.03	0
15 / 19	24	65%	20%	100%	0.5	0.2	0.7	17	28	1	0.0	0	1.03	0
10 / 14	18	73%	20%	100%	0.5	0.2	0.7	13	31	1	0.0	0	1.03	0
5 / 9	14	81%	20%	100%	0.5	0.2	0.7	10	34	1	0.0	0	1.03	0
0 / 4	8	89%	20%	100%	0.5	0.2	0.7	6	37	0	0.0	0	1.03	0
-5 / -1	3	97%	20%	100%	0.5	0.2	0.7	2	41	0	0.0	0	1.03	0
-10 / -6	2	100%	20%	100%	0.5	0.2	0.7	1	42	0	0.0	0	1.03	0
-15 / -11	1	100%	20%	100%	0.5	0.2	0.7	0	44	0	0.0	0	1.03	0
-20 / -16	0	100%	20%	100%	0.5	0.2	0.7	0	45	0	0.0	0	1.03	0
	646							454		7		78		82

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Energy Savings Analysis - EMS Improvements

Building: Oak Hill Middle School		Existing	Proposed	
Unit #: AHU-2	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Main Office	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: AHU w/ DX	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	8.0	8.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	454	138	145	8	599	Fans	0.7 kW
8 AM - 4 PM	Occupied	1,550	1,083	1,335	20	2,885	Cooling	2.7 kW
4 PM - 12 AM	Occupied	88	41	46	1	134	Total	3.4 kW
All	Unoccupied	0	0	0	0	0		
Totals		2,092	1,262	1,527	29	3,618		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	454	132	139	8	593	Fans	0.7 kW
8 AM - 4 PM	Occupied	1,367	951	1,173	18	2,540	Cooling	2.7 kW
4 PM - 12 AM	Occupied	88	40	46	1	133	Total	3.4 kW
All	Unoccupied	0	0	0	0	0		
Totals		1,909	1,123	1,358	27	3,267		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	0	6	6	0	6	Fans	0.0 kW
8 AM - 4 PM	Occupied	183	132	162	2	345	Cooling	0.0 kW
4 PM - 12 AM	Occupied	0	1	1	0	1	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		183	139	169	2	351		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: AHU-2
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.70	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.58	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.45	0
80 / 84	1	0%	77%	100%	0.5	0.2	0.7	0	0	0	1.6	1	1.33	1
75 / 79	6	0%	68%	100%	0.5	0.2	0.7	4	0	0	1.3	8	1.20	10
70 / 74	26	0%	59%	100%	0.5	0.2	0.7	19	0	0	1.1	29	1.08	31
65 / 69	49	0%	50%	100%	0.5	0.2	0.7	34	0	0	0.9	42	1.03	43
60 / 64	58	0%	41%	100%	0.5	0.2	0.7	41	0	0	0.6	33	1.03	34
55 / 59	60	0%	32%	100%	0.5	0.2	0.7	42	0	0	0.4	19	1.03	20
50 / 54	56	0%	24%	100%	0.5	0.2	0.7	39	0	0	0.2	6	1.03	6
45 / 49	54	17%	20%	100%	0.5	0.2	0.7	38	10	0	0.0	0	1.03	0
40 / 44	53	25%	20%	100%	0.5	0.2	0.7	37	14	0	0.0	0	1.03	0
35 / 39	61	33%	20%	100%	0.5	0.2	0.7	43	18	1	0.0	0	1.03	0
30 / 34	69	41%	20%	100%	0.5	0.2	0.7	48	22	1	0.0	0	1.03	0
25 / 29	48	49%	20%	100%	0.5	0.2	0.7	34	25	1	0.0	0	1.03	0
20 / 24	36	57%	20%	100%	0.5	0.2	0.7	25	29	1	0.0	0	1.03	0
15 / 19	24	65%	20%	100%	0.5	0.2	0.7	17	33	1	0.0	0	1.03	0
10 / 14	18	73%	20%	100%	0.5	0.2	0.7	13	37	1	0.0	0	1.03	0
5 / 9	14	81%	20%	100%	0.5	0.2	0.7	10	41	1	0.0	0	1.03	0
0 / 4	8	89%	20%	100%	0.5	0.2	0.7	6	45	0	0.0	0	1.03	0
-5 / -1	3	97%	20%	100%	0.5	0.2	0.7	2	49	0	0.0	0	1.03	0
-10 / -6	2	100%	20%	100%	0.5	0.2	0.7	1	51	0	0.0	0	1.03	0
-15 / -11	1	100%	20%	100%	0.5	0.2	0.7	0	52	0	0.0	0	1.03	0
-20 / -16	0	100%	20%	100%	0.5	0.2	0.7	0	53	0	0.0	0	1.03	0
646					454				8		138			

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Estimated Annual Energy Usage - EMS Improvements

Building: Oak Hill Middle School		Proposed	
Unit #: AHU-2	Scheduling And Setback Control	Y	Y = Included, N = Not Included
Area Served: Main Office	Supply And Return Fan VFD's	N	Y = Included, N = Not Included
System Type: AHU w/ DX	Demand-Controlled Ventilation	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	D	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	8.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	0.7 kW
12 M - 8 AM	Occupied	454	132	139	8	593	Cooling	2.7 kW
8 AM - 4 PM	Occupied	1,367	951	1,173	18	2,540	Total	3.4 kW
4 PM - 12 AM	Occupied	88	40	46	1	133		
All	Unoccupied	0	0	0	0	0		
Totals		1,909	1,123	1,358	27	3,267		

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Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: AHU-2
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.70	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.58	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.45	0
80 / 84	1	0%	77%	100%	0.5	0.2	0.7	0	0	0	1.6	1	1.33	1
75 / 79	6	0%	68%	100%	0.5	0.2	0.7	4	0	0	1.3	8	1.20	10
70 / 74	26	0%	59%	100%	0.5	0.2	0.7	19	0	0	1.1	29	1.08	31
65 / 69	49	0%	50%	100%	0.5	0.2	0.7	34	0	0	0.9	42	1.03	43
60 / 64	58	0%	41%	100%	0.5	0.2	0.7	41	0	0	0.6	33	1.03	34
55 / 59	60	0%	32%	100%	0.5	0.2	0.7	42	0	0	0.4	19	1.03	20
50 / 54	56	0%	24%	100%	0.5	0.2	0.7	39	0	0	0.0	0	1.03	0
45 / 49	54	17%	20%	100%	0.5	0.2	0.7	38	10	0	0.0	0	1.03	0
40 / 44	53	25%	20%	100%	0.5	0.2	0.7	37	14	0	0.0	0	1.03	0
35 / 39	61	33%	20%	100%	0.5	0.2	0.7	43	18	1	0.0	0	1.03	0
30 / 34	69	41%	20%	100%	0.5	0.2	0.7	48	22	1	0.0	0	1.03	0
25 / 29	48	49%	20%	100%	0.5	0.2	0.7	34	25	1	0.0	0	1.03	0
20 / 24	36	57%	20%	100%	0.5	0.2	0.7	25	29	1	0.0	0	1.03	0
15 / 19	24	65%	20%	100%	0.5	0.2	0.7	17	33	1	0.0	0	1.03	0
10 / 14	18	73%	20%	100%	0.5	0.2	0.7	13	37	1	0.0	0	1.03	0
5 / 9	14	81%	20%	100%	0.5	0.2	0.7	10	41	1	0.0	0	1.03	0
0 / 4	8	89%	20%	100%	0.5	0.2	0.7	6	45	0	0.0	0	1.03	0
-5 / -1	3	97%	20%	100%	0.5	0.2	0.7	2	49	0	0.0	0	1.03	0
-10 / -6	2	100%	20%	100%	0.5	0.2	0.7	1	51	0	0.0	0	1.03	0
-15 / -11	1	100%	20%	100%	0.5	0.2	0.7	0	52	0	0.0	0	1.03	0
-20 / -16	0	100%	20%	100%	0.5	0.2	0.7	0	53	0	0.0	0	1.03	0
	646							454		8		132		139

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Energy Savings Analysis - EMS Improvements

Building: Oak Hill Middle School		Existing	Proposed	
Unit #: AHU-3 & 4	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Gym	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: AHU	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	8.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	1,361	0	0	83	1,361	Fans	2.1 kW
8 AM - 4 PM	Occupied	4,650	0	0	211	4,650	Cooling	0.0 kW
4 PM - 12 AM	Occupied	264	0	0	14	264	Total	2.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		6,275	0	0	308	6,275		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	1,361	0	0	83	1,361	Fans	2.1 kW
8 AM - 4 PM	Occupied	4,102	0	0	186	4,102	Cooling	0.0 kW
4 PM - 12 AM	Occupied	264	0	0	14	264	Total	2.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		5,727	0	0	283	5,727		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	0	0	0	0	0	Fans	0.0 kW
8 AM - 4 PM	Occupied	548	0	0	25	548	Cooling	0.0 kW
4 PM - 12 AM	Occupied	0	0	0	0	0	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		548	0	0	25	548		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: AHU-3 & 4
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
80 / 84	1	0%	77%	100%	1.4	0.7	2.1	1	0	0	0.0	0	####	0
75 / 79	6	0%	68%	100%	1.4	0.7	2.1	13	0	0	0.0	0	9.64	0
70 / 74	26	0%	59%	100%	1.4	0.7	2.1	56	0	0	0.0	0	8.65	0
65 / 69	49	0%	50%	100%	1.4	0.7	2.1	103	0	0	0.0	0	8.25	0
60 / 64	58	0%	41%	100%	1.4	0.7	2.1	122	0	0	0.0	0	8.25	0
55 / 59	60	0%	32%	100%	1.4	0.7	2.1	126	2	0	0.0	0	8.25	0
50 / 54	56	0%	24%	100%	1.4	0.7	2.1	118	30	0	0.0	0	8.25	0
45 / 49	54	17%	20%	100%	1.4	0.7	2.1	113	123	2	0.0	0	8.25	0
40 / 44	53	25%	20%	100%	1.4	0.7	2.1	112	156	4	0.0	0	8.25	0
35 / 39	61	33%	20%	100%	1.4	0.7	2.1	128	190	8	0.0	0	8.25	0
30 / 34	69	41%	20%	100%	1.4	0.7	2.1	145	225	13	0.0	0	8.25	0
25 / 29	48	49%	20%	100%	1.4	0.7	2.1	102	261	13	0.0	0	8.25	0
20 / 24	36	57%	20%	100%	1.4	0.7	2.1	75	297	12	0.0	0	8.25	0
15 / 19	24	65%	20%	100%	1.4	0.7	2.1	50	333	9	0.0	0	8.25	0
10 / 14	18	73%	20%	100%	1.4	0.7	2.1	39	369	8	0.0	0	8.25	0
5 / 9	14	81%	20%	100%	1.4	0.7	2.1	30	405	7	0.0	0	8.25	0
0 / 4	8	89%	20%	100%	1.4	0.7	2.1	17	441	4	0.0	0	8.25	0
-5 / -1	3	97%	20%	100%	1.4	0.7	2.1	6	477	2	0.0	0	8.25	0
-10 / -6	2	100%	20%	100%	1.4	0.7	2.1	3	501	1	0.0	0	8.25	0
-15 / -11	1	100%	20%	100%	1.4	0.7	2.1	1	517	0	0.0	0	8.25	0
-20 / -16	0	100%	20%	100%	1.4	0.7	2.1	0	533	0	0.0	0	8.25	0
646					1,361				83		0			

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Estimated Annual Energy Usage - EMS Improvements

Building: Oak Hill Middle School		Proposed	
Unit #: AHU-3 & 4	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Gym	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: AHU	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	D	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	8.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	2.1 kW
12 M - 8 AM	Occupied	1,361	0	0	83	1,361	Cooling	0.0 kW
8 AM - 4 PM	Occupied	4,102	0	0	186	4,102		
4 PM - 12 AM	Occupied	264	0	0	14	264		
All	Unoccupied	0	0	0	0	0		
Totals		5,727	0	0	283	5,727	Total	2.1 kW

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Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: AHU-3 & 4
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.70	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.58	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.45	0
80 / 84	1	0%	77%	100%	1.4	0.7	2.1	1	0	0	0.0	0	1.33	0
75 / 79	6	0%	68%	100%	1.4	0.7	2.1	13	0	0	0.0	0	1.20	0
70 / 74	26	0%	59%	100%	1.4	0.7	2.1	56	0	0	0.0	0	1.08	0
65 / 69	49	0%	50%	100%	1.4	0.7	2.1	103	0	0	0.0	0	1.03	0
60 / 64	58	0%	41%	100%	1.4	0.7	2.1	122	0	0	0.0	0	1.03	0
55 / 59	60	0%	32%	100%	1.4	0.7	2.1	126	2	0	0.0	0	1.03	0
50 / 54	56	0%	24%	100%	1.4	0.7	2.1	118	30	0	0.0	0	1.03	0
45 / 49	54	17%	20%	100%	1.4	0.7	2.1	113	123	2	0.0	0	1.03	0
40 / 44	53	25%	20%	100%	1.4	0.7	2.1	112	156	4	0.0	0	1.03	0
35 / 39	61	33%	20%	100%	1.4	0.7	2.1	128	190	8	0.0	0	1.03	0
30 / 34	69	41%	20%	100%	1.4	0.7	2.1	145	225	13	0.0	0	1.03	0
25 / 29	48	49%	20%	100%	1.4	0.7	2.1	102	261	13	0.0	0	1.03	0
20 / 24	36	57%	20%	100%	1.4	0.7	2.1	75	297	12	0.0	0	1.03	0
15 / 19	24	65%	20%	100%	1.4	0.7	2.1	50	333	9	0.0	0	1.03	0
10 / 14	18	73%	20%	100%	1.4	0.7	2.1	39	369	8	0.0	0	1.03	0
5 / 9	14	81%	20%	100%	1.4	0.7	2.1	30	405	7	0.0	0	1.03	0
0 / 4	8	89%	20%	100%	1.4	0.7	2.1	17	441	4	0.0	0	1.03	0
-5 / -1	3	97%	20%	100%	1.4	0.7	2.1	6	477	2	0.0	0	1.03	0
-10 / -6	2	100%	20%	100%	1.4	0.7	2.1	3	501	1	0.0	0	1.03	0
-15 / -11	1	100%	20%	100%	1.4	0.7	2.1	1	517	0	0.0	0	1.03	0
-20 / -16	0	100%	20%	100%	1.4	0.7	2.1	0	533	0	0.0	0	1.03	0
	646							1,361		83		0		0

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Energy Savings Analysis - EMS Improvements

Building: Oak Hill Middle School		Existing	Proposed	
Unit #: AHU-7	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Locker Rooms	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: AHU	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	8.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	1.2 kW
12 M - 8 AM	Occupied	794	0	0	30	794	Cooling	0.0 kW
8 AM - 4 PM	Occupied	2,713	0	0	79	2,713	Total	1.2 kW
4 PM - 12 AM	Occupied	154	0	0	5	154		
All	Unoccupied	0	0	0	0	0		
Totals		3,660	0	0	114	3,660		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	1.2 kW
12 M - 8 AM	Occupied	794	0	0	30	794	Cooling	0.0 kW
8 AM - 4 PM	Occupied	2,393	0	0	70	2,393	Total	1.2 kW
4 PM - 12 AM	Occupied	154	0	0	5	154		
All	Unoccupied	0	0	0	0	0		
Totals		3,341	0	0	105	3,341		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	0.0 kW
12 M - 8 AM	Occupied	0	0	0	0	0	Cooling	0.0 kW
8 AM - 4 PM	Occupied	320	0	0	9	320	Total	0.0 kW
4 PM - 12 AM	Occupied	0	0	0	0	0		
All	Unoccupied	0	0	0	0	0		
Totals		320	0	0	9	320		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: AHU-7
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
80 / 84	1	0%	77%	100%	0.7	0.5	1.2	1	0	0	0.0	0	####	0
75 / 79	6	0%	68%	100%	0.7	0.5	1.2	7	0	0	0.0	0	9.64	0
70 / 74	26	0%	59%	100%	0.7	0.5	1.2	32	0	0	0.0	0	8.65	0
65 / 69	49	0%	50%	100%	0.7	0.5	1.2	60	0	0	0.0	0	8.25	0
60 / 64	58	0%	41%	100%	0.7	0.5	1.2	71	6	0	0.0	0	8.25	0
55 / 59	60	0%	32%	100%	0.7	0.5	1.2	74	16	0	0.0	0	8.25	0
50 / 54	56	0%	24%	100%	0.7	0.5	1.2	69	26	0	0.0	0	8.25	0
45 / 49	54	17%	20%	100%	0.7	0.5	1.2	66	48	1	0.0	0	8.25	0
40 / 44	53	25%	20%	100%	0.7	0.5	1.2	65	59	1	0.0	0	8.25	0
35 / 39	61	33%	20%	100%	0.7	0.5	1.2	75	70	3	0.0	0	8.25	0
30 / 34	69	41%	20%	100%	0.7	0.5	1.2	84	82	5	0.0	0	8.25	0
25 / 29	48	49%	20%	100%	0.7	0.5	1.2	60	94	5	0.0	0	8.25	0
20 / 24	36	57%	20%	100%	0.7	0.5	1.2	44	106	4	0.0	0	8.25	0
15 / 19	24	65%	20%	100%	0.7	0.5	1.2	29	118	3	0.0	0	8.25	0
10 / 14	18	73%	20%	100%	0.7	0.5	1.2	23	130	3	0.0	0	8.25	0
5 / 9	14	81%	20%	100%	0.7	0.5	1.2	17	142	2	0.0	0	8.25	0
0 / 4	8	89%	20%	100%	0.7	0.5	1.2	10	154	1	0.0	0	8.25	0
-5 / -1	3	97%	20%	100%	0.7	0.5	1.2	4	166	1	0.0	0	8.25	0
-10 / -6	2	100%	20%	100%	0.7	0.5	1.2	2	176	0	0.0	0	8.25	0
-15 / -11	1	100%	20%	100%	0.7	0.5	1.2	1	184	0	0.0	0	8.25	0
-20 / -16	0	100%	20%	100%	0.7	0.5	1.2	0	192	0	0.0	0	8.25	0
646					794				30		0		0	

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Estimated Annual Energy Usage - EMS Improvements

Building: Oak Hill Middle School		Proposed	
Unit #: AHU-7	Scheduling And Setback Control	Y	Y = Included, N = Not Included
Area Served: Locker Rooms	Supply And Return Fan VFD's	N	Y = Included, N = Not Included
System Type: AHU	Demand-Controlled Ventilation	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	D	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	8.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	794	0	0	30	794	Fans	1.2 kW
8 AM - 4 PM	Occupied	2,393	0	0	70	2,393	Cooling	0.0 kW
4 PM - 12 AM	Occupied	154	0	0	5	154	Total	1.2 kW
All	Unoccupied	0	0	0	0	0		
Totals		3,341	0	0	105	3,341		

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Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: AHU-7
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.70	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.58	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.45	0
80 / 84	1	0%	77%	100%	0.7	0.5	1.2	1	0	0	0.0	0	1.33	0
75 / 79	6	0%	68%	100%	0.7	0.5	1.2	7	0	0	0.0	0	1.20	0
70 / 74	26	0%	59%	100%	0.7	0.5	1.2	32	0	0	0.0	0	1.08	0
65 / 69	49	0%	50%	100%	0.7	0.5	1.2	60	0	0	0.0	0	1.03	0
60 / 64	58	0%	41%	100%	0.7	0.5	1.2	71	6	0	0.0	0	1.03	0
55 / 59	60	0%	32%	100%	0.7	0.5	1.2	74	16	0	0.0	0	1.03	0
50 / 54	56	0%	24%	100%	0.7	0.5	1.2	69	26	0	0.0	0	1.03	0
45 / 49	54	17%	20%	100%	0.7	0.5	1.2	66	48	1	0.0	0	1.03	0
40 / 44	53	25%	20%	100%	0.7	0.5	1.2	65	59	1	0.0	0	1.03	0
35 / 39	61	33%	20%	100%	0.7	0.5	1.2	75	70	3	0.0	0	1.03	0
30 / 34	69	41%	20%	100%	0.7	0.5	1.2	84	82	5	0.0	0	1.03	0
25 / 29	48	49%	20%	100%	0.7	0.5	1.2	60	94	5	0.0	0	1.03	0
20 / 24	36	57%	20%	100%	0.7	0.5	1.2	44	106	4	0.0	0	1.03	0
15 / 19	24	65%	20%	100%	0.7	0.5	1.2	29	118	3	0.0	0	1.03	0
10 / 14	18	73%	20%	100%	0.7	0.5	1.2	23	130	3	0.0	0	1.03	0
5 / 9	14	81%	20%	100%	0.7	0.5	1.2	17	142	2	0.0	0	1.03	0
0 / 4	8	89%	20%	100%	0.7	0.5	1.2	10	154	1	0.0	0	1.03	0
-5 / -1	3	97%	20%	100%	0.7	0.5	1.2	4	166	1	0.0	0	1.03	0
-10 / -6	2	100%	20%	100%	0.7	0.5	1.2	2	176	0	0.0	0	1.03	0
-15 / -11	1	100%	20%	100%	0.7	0.5	1.2	1	184	0	0.0	0	1.03	0
-20 / -16	0	100%	20%	100%	0.7	0.5	1.2	0	192	0	0.0	0	1.03	0
	646							794		30		0		0

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Energy Savings Analysis - EMS Improvements

Building: Oak Hill Middle School		Existing	Proposed	
Unit #: AHU-8	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Auditorium	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: AHU w/ DX	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	8.0	8.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	4,884	661	709	122	5,593	Fans	7.6 kW
8 AM - 4 PM	Occupied	16,689	9,438	12,062	312	28,751	Cooling	29.9 kW
4 PM - 12 AM	Occupied	946	280	328	21	1,274	Total	37.4 kW
All	Unoccupied	0	0	0	0	0		
Totals		22,519	10,379	13,099	454	35,618		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	4,884	661	709	122	5,593	Fans	7.6 kW
8 AM - 4 PM	Occupied	14,721	8,325	10,640	275	25,361	Cooling	29.9 kW
4 PM - 12 AM	Occupied	946	280	328	21	1,274	Total	37.4 kW
All	Unoccupied	0	0	0	0	0		
Totals		20,551	9,266	11,676	418	32,227		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	0	0	0	0	0	Fans	0.0 kW
8 AM - 4 PM	Occupied	1,968	1,113	1,422	37	3,390	Cooling	0.0 kW
4 PM - 12 AM	Occupied	0	0	0	0	0	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		1,968	1,113	1,422	37	3,390		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: AHU-8
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.70	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.58	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.45	0
80 / 84	1	0%	77%	100%	5.4	2.2	7.6	5	0	0	16.6	11	1.33	15
75 / 79	6	0%	68%	100%	5.4	2.2	7.6	45	0	0	12.0	72	1.20	86
70 / 74	26	0%	59%	100%	5.4	2.2	7.6	199	0	0	8.6	227	1.08	246
65 / 69	49	0%	50%	100%	5.4	2.2	7.6	370	0	0	5.3	252	1.03	260
60 / 64	58	0%	41%	100%	5.4	2.2	7.6	439	0	0	1.9	98	1.03	101
55 / 59	60	0%	32%	100%	5.4	2.2	7.6	454	18	0	0.0	0	1.03	0
50 / 54	56	0%	24%	100%	5.4	2.2	7.6	425	59	1	0.0	0	1.03	0
45 / 49	54	17%	20%	100%	5.4	2.2	7.6	405	181	3	0.0	0	1.03	0
40 / 44	53	25%	20%	100%	5.4	2.2	7.6	402	230	5	0.0	0	1.03	0
35 / 39	61	33%	20%	100%	5.4	2.2	7.6	459	278	11	0.0	0	1.03	0
30 / 34	69	41%	20%	100%	5.4	2.2	7.6	519	331	20	0.0	0	1.03	0
25 / 29	48	49%	20%	100%	5.4	2.2	7.6	367	383	18	0.0	0	1.03	0
20 / 24	36	57%	20%	100%	5.4	2.2	7.6	269	436	17	0.0	0	1.03	0
15 / 19	24	65%	20%	100%	5.4	2.2	7.6	181	488	13	0.0	0	1.03	0
10 / 14	18	73%	20%	100%	5.4	2.2	7.6	139	541	12	0.0	0	1.03	0
5 / 9	14	81%	20%	100%	5.4	2.2	7.6	107	594	10	0.0	0	1.03	0
0 / 4	8	89%	20%	100%	5.4	2.2	7.6	60	646	6	0.0	0	1.03	0
-5 / -1	3	97%	20%	100%	5.4	2.2	7.6	22	699	2	0.0	0	1.03	0
-10 / -6	2	100%	20%	100%	5.4	2.2	7.6	12	735	1	0.0	0	1.03	0
-15 / -11	1	100%	20%	100%	5.4	2.2	7.6	5	762	1	0.0	0	1.03	0
-20 / -16	0	100%	20%	100%	5.4	2.2	7.6	2	788	0	0.0	0	1.03	0
646					4,884				122		661			

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Estimated Annual Energy Usage - EMS Improvements

Building: Oak Hill Middle School		Proposed	
Unit #: AHU-8	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Auditorium	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: AHU w/ DX	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	D	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	8.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	7.6 kW
12 M - 8 AM	Occupied	4,884	661	709	122	5,593	Cooling	29.9 kW
8 AM - 4 PM	Occupied	14,721	8,325	10,640	275	25,361	Total	37.4 kW
4 PM - 12 AM	Occupied	946	280	328	21	1,274		
All	Unoccupied	0	0	0	0	0		
Totals		20,551	9,266	11,676	418	32,227		

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Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: AHU-8
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.70	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.58	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.45	0
80 / 84	1	0%	77%	100%	5.4	2.2	7.6	5	0	0	16.6	11	1.33	15
75 / 79	6	0%	68%	100%	5.4	2.2	7.6	45	0	0	12.0	72	1.20	86
70 / 74	26	0%	59%	100%	5.4	2.2	7.6	199	0	0	8.6	227	1.08	246
65 / 69	49	0%	50%	100%	5.4	2.2	7.6	370	0	0	5.3	252	1.03	260
60 / 64	58	0%	41%	100%	5.4	2.2	7.6	439	0	0	1.9	98	1.03	101
55 / 59	60	0%	32%	100%	5.4	2.2	7.6	454	18	0	0.0	0	1.03	0
50 / 54	56	0%	24%	100%	5.4	2.2	7.6	425	59	1	0.0	0	1.03	0
45 / 49	54	17%	20%	100%	5.4	2.2	7.6	405	181	3	0.0	0	1.03	0
40 / 44	53	25%	20%	100%	5.4	2.2	7.6	402	230	5	0.0	0	1.03	0
35 / 39	61	33%	20%	100%	5.4	2.2	7.6	459	278	11	0.0	0	1.03	0
30 / 34	69	41%	20%	100%	5.4	2.2	7.6	519	331	20	0.0	0	1.03	0
25 / 29	48	49%	20%	100%	5.4	2.2	7.6	367	383	18	0.0	0	1.03	0
20 / 24	36	57%	20%	100%	5.4	2.2	7.6	269	436	17	0.0	0	1.03	0
15 / 19	24	65%	20%	100%	5.4	2.2	7.6	181	488	13	0.0	0	1.03	0
10 / 14	18	73%	20%	100%	5.4	2.2	7.6	139	541	12	0.0	0	1.03	0
5 / 9	14	81%	20%	100%	5.4	2.2	7.6	107	594	10	0.0	0	1.03	0
0 / 4	8	89%	20%	100%	5.4	2.2	7.6	60	646	6	0.0	0	1.03	0
-5 / -1	3	97%	20%	100%	5.4	2.2	7.6	22	699	2	0.0	0	1.03	0
-10 / -6	2	100%	20%	100%	5.4	2.2	7.6	12	735	1	0.0	0	1.03	0
-15 / -11	1	100%	20%	100%	5.4	2.2	7.6	5	762	1	0.0	0	1.03	0
-20 / -16	0	100%	20%	100%	5.4	2.2	7.6	2	788	0	0.0	0	1.03	0
	646							4,884		122		661		709

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Energy Savings Analysis - EMS Improvements

Building: Oak Hill Middle School		Existing	Proposed	
Unit #: AHU-9	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Library	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: AHU w/ DX	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	8.0	8.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	
12 M - 8 AM	Occupied	1,939	622	656	43	2,595	Fans 3.0 kW
8 AM - 4 PM	Occupied	6,625	5,286	6,550	107	13,175	Cooling 13.6 kW
4 PM - 12 AM	Occupied	376	194	219	7	595	
All	Unoccupied	0	0	0	0	0	Total 16.6 kW
Totals		8,939	6,102	7,426	156	16,365	

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	
12 M - 8 AM	Occupied	1,939	609	643	43	2,582	Fans 3.0 kW
8 AM - 4 PM	Occupied	5,844	4,654	5,768	94	11,612	Cooling 13.6 kW
4 PM - 12 AM	Occupied	376	192	218	7	593	
All	Unoccupied	0	0	0	0	0	Total 16.6 kW
Totals		8,158	5,455	6,629	144	14,787	

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	
12 M - 8 AM	Occupied	0	13	13	0	13	Fans 0.0 kW
8 AM - 4 PM	Occupied	781	632	782	13	1,563	Cooling 0.0 kW
4 PM - 12 AM	Occupied	0	2	2	0	2	
All	Unoccupied	0	0	0	0	0	Total 0.0 kW
Totals		781	647	796	13	1,578	

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: AHU-9
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.70	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.58	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.45	0
80 / 84	1	0%	77%	100%	2.0	1.0	3.0	2	0	0	7.9	5	1.33	7
75 / 79	6	0%	68%	100%	2.0	1.0	3.0	18	0	0	6.6	39	1.20	47
70 / 74	26	0%	59%	100%	2.0	1.0	3.0	79	0	0	5.3	141	1.08	152
65 / 69	49	0%	50%	100%	2.0	1.0	3.0	147	0	0	4.1	197	1.03	203
60 / 64	58	0%	41%	100%	2.0	1.0	3.0	174	0	0	2.8	149	1.03	154
55 / 59	60	0%	32%	100%	2.0	1.0	3.0	180	0	0	1.6	78	1.03	80
50 / 54	56	0%	24%	100%	2.0	1.0	3.0	169	0	0	0.3	13	1.03	13
45 / 49	54	17%	20%	100%	2.0	1.0	3.0	161	56	1	0.0	0	1.03	0
40 / 44	53	25%	20%	100%	2.0	1.0	3.0	159	75	2	0.0	0	1.03	0
35 / 39	61	33%	20%	100%	2.0	1.0	3.0	182	95	4	0.0	0	1.03	0
30 / 34	69	41%	20%	100%	2.0	1.0	3.0	206	115	7	0.0	0	1.03	0
25 / 29	48	49%	20%	100%	2.0	1.0	3.0	146	136	6	0.0	0	1.03	0
20 / 24	36	57%	20%	100%	2.0	1.0	3.0	107	156	6	0.0	0	1.03	0
15 / 19	24	65%	20%	100%	2.0	1.0	3.0	72	176	5	0.0	0	1.03	0
10 / 14	18	73%	20%	100%	2.0	1.0	3.0	55	197	4	0.0	0	1.03	0
5 / 9	14	81%	20%	100%	2.0	1.0	3.0	43	217	4	0.0	0	1.03	0
0 / 4	8	89%	20%	100%	2.0	1.0	3.0	24	238	2	0.0	0	1.03	0
-5 / -1	3	97%	20%	100%	2.0	1.0	3.0	9	258	1	0.0	0	1.03	0
-10 / -6	2	100%	20%	100%	2.0	1.0	3.0	5	270	1	0.0	0	1.03	0
-15 / -11	1	100%	20%	100%	2.0	1.0	3.0	2	275	0	0.0	0	1.03	0
-20 / -16	0	100%	20%	100%	2.0	1.0	3.0	1	281	0	0.0	0	1.03	0
646					1,939				43		622		656	

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Estimated Annual Energy Usage - EMS Improvements

Building: Oak Hill Middle School		Proposed	
Unit #: AHU-9	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Library	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: AHU w/ DX	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	D	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	8.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	3.0 kW
12 M - 8 AM	Occupied	1,939	609	643	43	2,582	Cooling	13.6 kW
8 AM - 4 PM	Occupied	5,844	4,654	5,768	94	11,612		
4 PM - 12 AM	Occupied	376	192	218	7	593		
All	Unoccupied	0	0	0	0	0		
Totals		8,158	5,455	6,629	144	14,787	Total	16.6 kW

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Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: AHU-9
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.70	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.58	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.45	0
80 / 84	1	0%	77%	100%	2.0	1.0	3.0	2	0	0	7.9	5	1.33	7
75 / 79	6	0%	68%	100%	2.0	1.0	3.0	18	0	0	6.6	39	1.20	47
70 / 74	26	0%	59%	100%	2.0	1.0	3.0	79	0	0	5.3	141	1.08	152
65 / 69	49	0%	50%	100%	2.0	1.0	3.0	147	0	0	4.1	197	1.03	203
60 / 64	58	0%	41%	100%	2.0	1.0	3.0	174	0	0	2.8	149	1.03	154
55 / 59	60	0%	32%	100%	2.0	1.0	3.0	180	0	0	1.6	78	1.03	80
50 / 54	56	0%	24%	100%	2.0	1.0	3.0	169	0	0	0.0	0	1.03	0
45 / 49	54	17%	20%	100%	2.0	1.0	3.0	161	56	1	0.0	0	1.03	0
40 / 44	53	25%	20%	100%	2.0	1.0	3.0	159	75	2	0.0	0	1.03	0
35 / 39	61	33%	20%	100%	2.0	1.0	3.0	182	95	4	0.0	0	1.03	0
30 / 34	69	41%	20%	100%	2.0	1.0	3.0	206	115	7	0.0	0	1.03	0
25 / 29	48	49%	20%	100%	2.0	1.0	3.0	146	136	6	0.0	0	1.03	0
20 / 24	36	57%	20%	100%	2.0	1.0	3.0	107	156	6	0.0	0	1.03	0
15 / 19	24	65%	20%	100%	2.0	1.0	3.0	72	176	5	0.0	0	1.03	0
10 / 14	18	73%	20%	100%	2.0	1.0	3.0	55	197	4	0.0	0	1.03	0
5 / 9	14	81%	20%	100%	2.0	1.0	3.0	43	217	4	0.0	0	1.03	0
0 / 4	8	89%	20%	100%	2.0	1.0	3.0	24	238	2	0.0	0	1.03	0
-5 / -1	3	97%	20%	100%	2.0	1.0	3.0	9	258	1	0.0	0	1.03	0
-10 / -6	2	100%	20%	100%	2.0	1.0	3.0	5	270	1	0.0	0	1.03	0
-15 / -11	1	100%	20%	100%	2.0	1.0	3.0	2	275	0	0.0	0	1.03	0
-20 / -16	0	100%	20%	100%	2.0	1.0	3.0	1	281	0	0.0	0	1.03	0
	646							1,939		43		609		643

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Energy Savings Analysis - EMS Improvements

Building: Oak Hill Middle School		Existing	Proposed	
Unit #: AHU-10	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Cafeteria	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: MAU	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	8.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	3,312	0	0	110	3,312	Fans	5.1 kW
8 AM - 4 PM	Occupied	11,317	0	0	290	11,317	Cooling	0.0 kW
4 PM - 12 AM	Occupied	641	0	0	19	641	Total	5.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		15,271	0	0	419	15,271		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	3,312	0	0	110	3,312	Fans	5.1 kW
8 AM - 4 PM	Occupied	9,983	0	0	256	9,983	Cooling	0.0 kW
4 PM - 12 AM	Occupied	641	0	0	19	641	Total	5.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		13,936	0	0	385	13,936		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	0	0	0	0	0	Fans	0.0 kW
8 AM - 4 PM	Occupied	1,335	0	0	34	1,335	Cooling	0.0 kW
4 PM - 12 AM	Occupied	0	0	0	0	0	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		1,335	0	0	34	1,335		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: AHU-10
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
80 / 84	1	0%	77%	100%	2.2	2.9	5.1	3	0	0	0.0	0	####	0
75 / 79	6	0%	68%	100%	2.2	2.9	5.1	31	0	0	0.0	0	9.64	0
70 / 74	26	0%	59%	100%	2.2	2.9	5.1	135	0	0	0.0	0	8.65	0
65 / 69	49	0%	50%	100%	2.2	2.9	5.1	251	0	0	0.0	0	8.25	0
60 / 64	58	0%	41%	100%	2.2	2.9	5.1	297	23	0	0.0	0	8.25	0
55 / 59	60	0%	32%	100%	2.2	2.9	5.1	308	59	0	0.0	0	8.25	0
50 / 54	56	0%	24%	100%	2.2	2.9	5.1	288	94	1	0.0	0	8.25	0
45 / 49	54	17%	20%	100%	2.2	2.9	5.1	275	177	3	0.0	0	8.25	0
40 / 44	53	25%	20%	100%	2.2	2.9	5.1	272	217	5	0.0	0	8.25	0
35 / 39	61	33%	20%	100%	2.2	2.9	5.1	311	257	11	0.0	0	8.25	0
30 / 34	69	41%	20%	100%	2.2	2.9	5.1	352	301	18	0.0	0	8.25	0
25 / 29	48	49%	20%	100%	2.2	2.9	5.1	249	345	17	0.0	0	8.25	0
20 / 24	36	57%	20%	100%	2.2	2.9	5.1	183	389	15	0.0	0	8.25	0
15 / 19	24	65%	20%	100%	2.2	2.9	5.1	123	433	12	0.0	0	8.25	0
10 / 14	18	73%	20%	100%	2.2	2.9	5.1	94	477	10	0.0	0	8.25	0
5 / 9	14	81%	20%	100%	2.2	2.9	5.1	73	521	9	0.0	0	8.25	0
0 / 4	8	89%	20%	100%	2.2	2.9	5.1	41	565	5	0.0	0	8.25	0
-5 / -1	3	97%	20%	100%	2.2	2.9	5.1	15	610	2	0.0	0	8.25	0
-10 / -6	2	100%	20%	100%	2.2	2.9	5.1	8	645	1	0.0	0	8.25	0
-15 / -11	1	100%	20%	100%	2.2	2.9	5.1	3	675	1	0.0	0	8.25	0
-20 / -16	0	100%	20%	100%	2.2	2.9	5.1	1	704	0	0.0	0	8.25	0
646								3,312		110		0		0

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Estimated Annual Energy Usage - EMS Improvements

Building: Oak Hill Middle School		Proposed	
Unit #: AHU-10	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Cafeteria	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: MAU	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	D	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	8.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	5.1 kW
12 M - 8 AM	Occupied	3,312	0	0	110	3,312	Cooling	0.0 kW
8 AM - 4 PM	Occupied	9,983	0	0	256	9,983		
4 PM - 12 AM	Occupied	641	0	0	19	641		
All	Unoccupied	0	0	0	0	0		
Totals		13,936	0	0	385	13,936	Total	5.1 kW

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Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: AHU-10
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.70	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.58	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.45	0
80 / 84	1	0%	77%	100%	2.2	2.9	5.1	3	0	0	0.0	0	1.33	0
75 / 79	6	0%	68%	100%	2.2	2.9	5.1	31	0	0	0.0	0	1.20	0
70 / 74	26	0%	59%	100%	2.2	2.9	5.1	135	0	0	0.0	0	1.08	0
65 / 69	49	0%	50%	100%	2.2	2.9	5.1	251	0	0	0.0	0	1.03	0
60 / 64	58	0%	41%	100%	2.2	2.9	5.1	297	23	0	0.0	0	1.03	0
55 / 59	60	0%	32%	100%	2.2	2.9	5.1	308	59	0	0.0	0	1.03	0
50 / 54	56	0%	24%	100%	2.2	2.9	5.1	288	94	1	0.0	0	1.03	0
45 / 49	54	17%	20%	100%	2.2	2.9	5.1	275	177	3	0.0	0	1.03	0
40 / 44	53	25%	20%	100%	2.2	2.9	5.1	272	217	5	0.0	0	1.03	0
35 / 39	61	33%	20%	100%	2.2	2.9	5.1	311	257	11	0.0	0	1.03	0
30 / 34	69	41%	20%	100%	2.2	2.9	5.1	352	301	18	0.0	0	1.03	0
25 / 29	48	49%	20%	100%	2.2	2.9	5.1	249	345	17	0.0	0	1.03	0
20 / 24	36	57%	20%	100%	2.2	2.9	5.1	183	389	15	0.0	0	1.03	0
15 / 19	24	65%	20%	100%	2.2	2.9	5.1	123	433	12	0.0	0	1.03	0
10 / 14	18	73%	20%	100%	2.2	2.9	5.1	94	477	10	0.0	0	1.03	0
5 / 9	14	81%	20%	100%	2.2	2.9	5.1	73	521	9	0.0	0	1.03	0
0 / 4	8	89%	20%	100%	2.2	2.9	5.1	41	565	5	0.0	0	1.03	0
-5 / -1	3	97%	20%	100%	2.2	2.9	5.1	15	610	2	0.0	0	1.03	0
-10 / -6	2	100%	20%	100%	2.2	2.9	5.1	8	645	1	0.0	0	1.03	0
-15 / -11	1	100%	20%	100%	2.2	2.9	5.1	3	675	1	0.0	0	1.03	0
-20 / -16	0	100%	20%	100%	2.2	2.9	5.1	1	704	0	0.0	0	1.03	0
	646							3,312		110		0		0

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Energy Savings Analysis - EMS Improvements

Building: Oak Hill Middle School		Existing	Proposed	
Unit #: AHU-11	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Computer Labs	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: AHU w/ DX	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	8.0	8.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	2,142	715	754	42	2,896	Fans	3.3 kW
8 AM - 4 PM	Occupied	7,320	5,669	6,994	105	14,314	Cooling	14.1 kW
4 PM - 12 AM	Occupied	415	214	242	7	657	Total	17.4 kW
All	Unoccupied	0	0	0	0	0		
Totals		9,877	6,598	7,990	154	17,867		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	2,142	687	725	42	2,867	Fans	3.3 kW
8 AM - 4 PM	Occupied	6,457	4,980	6,148	92	12,605	Cooling	14.1 kW
4 PM - 12 AM	Occupied	415	211	238	7	653	Total	17.4 kW
All	Unoccupied	0	0	0	0	0		
Totals		9,014	5,877	7,111	142	16,125		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	0	28	29	0	29	Fans	0.0 kW
8 AM - 4 PM	Occupied	863	689	846	12	1,709	Cooling	0.0 kW
4 PM - 12 AM	Occupied	0	4	4	0	4	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		863	721	879	12	1,742		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: AHU-11
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.70	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.58	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.45	0
80 / 84	1	0%	77%	100%	3.2	0.2	3.3	2	0	0	8.3	6	1.33	7
75 / 79	6	0%	68%	100%	3.2	0.2	3.3	20	0	0	7.0	42	1.20	51
70 / 74	26	0%	59%	100%	3.2	0.2	3.3	87	0	0	5.8	152	1.08	164
65 / 69	49	0%	50%	100%	3.2	0.2	3.3	162	0	0	4.5	217	1.03	224
60 / 64	58	0%	41%	100%	3.2	0.2	3.3	192	0	0	3.3	171	1.03	177
55 / 59	60	0%	32%	100%	3.2	0.2	3.3	199	0	0	2.0	99	1.03	102
50 / 54	56	0%	24%	100%	3.2	0.2	3.3	186	0	0	0.8	28	1.03	29
45 / 49	54	17%	20%	100%	3.2	0.2	3.3	178	53	1	0.0	0	1.03	0
40 / 44	53	25%	20%	100%	3.2	0.2	3.3	176	73	2	0.0	0	1.03	0
35 / 39	61	33%	20%	100%	3.2	0.2	3.3	201	92	4	0.0	0	1.03	0
30 / 34	69	41%	20%	100%	3.2	0.2	3.3	228	113	7	0.0	0	1.03	0
25 / 29	48	49%	20%	100%	3.2	0.2	3.3	161	134	6	0.0	0	1.03	0
20 / 24	36	57%	20%	100%	3.2	0.2	3.3	118	154	6	0.0	0	1.03	0
15 / 19	24	65%	20%	100%	3.2	0.2	3.3	79	175	5	0.0	0	1.03	0
10 / 14	18	73%	20%	100%	3.2	0.2	3.3	61	195	4	0.0	0	1.03	0
5 / 9	14	81%	20%	100%	3.2	0.2	3.3	47	216	4	0.0	0	1.03	0
0 / 4	8	89%	20%	100%	3.2	0.2	3.3	26	237	2	0.0	0	1.03	0
-5 / -1	3	97%	20%	100%	3.2	0.2	3.3	10	257	1	0.0	0	1.03	0
-10 / -6	2	100%	20%	100%	3.2	0.2	3.3	5	268	1	0.0	0	1.03	0
-15 / -11	1	100%	20%	100%	3.2	0.2	3.3	2	273	0	0.0	0	1.03	0
-20 / -16	0	100%	20%	100%	3.2	0.2	3.3	1	278	0	0.0	0	1.03	0
646					2,142				42		715			

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Estimated Annual Energy Usage - EMS Improvements

Building: Oak Hill Middle School		Proposed	
Unit #: AHU-11	Scheduling And Setback Control	Y	Y = Included, N = Not Included
Area Served: Computer Labs	Supply And Return Fan VFD's	N	Y = Included, N = Not Included
System Type: AHU w/ DX	Demand-Controlled Ventilation	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	D	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	8.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	3.3 kW
12 M - 8 AM	Occupied	2,142	687	725	42	2,867	Cooling	14.1 kW
8 AM - 4 PM	Occupied	6,457	4,980	6,148	92	12,605		
4 PM - 12 AM	Occupied	415	211	238	7	653		
All	Unoccupied	0	0	0	0	0		
Totals		9,014	5,877	7,111	142	16,125	Total	17.4 kW

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Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: AHU-11
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.70	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.58	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.45	0
80 / 84	1	0%	77%	100%	3.2	0.2	3.3	2	0	0	8.3	6	1.33	7
75 / 79	6	0%	68%	100%	3.2	0.2	3.3	20	0	0	7.0	42	1.20	51
70 / 74	26	0%	59%	100%	3.2	0.2	3.3	87	0	0	5.8	152	1.08	164
65 / 69	49	0%	50%	100%	3.2	0.2	3.3	162	0	0	4.5	217	1.03	224
60 / 64	58	0%	41%	100%	3.2	0.2	3.3	192	0	0	3.3	171	1.03	177
55 / 59	60	0%	32%	100%	3.2	0.2	3.3	199	0	0	2.0	99	1.03	102
50 / 54	56	0%	24%	100%	3.2	0.2	3.3	186	0	0	0.0	0	1.03	0
45 / 49	54	17%	20%	100%	3.2	0.2	3.3	178	53	1	0.0	0	1.03	0
40 / 44	53	25%	20%	100%	3.2	0.2	3.3	176	73	2	0.0	0	1.03	0
35 / 39	61	33%	20%	100%	3.2	0.2	3.3	201	92	4	0.0	0	1.03	0
30 / 34	69	41%	20%	100%	3.2	0.2	3.3	228	113	7	0.0	0	1.03	0
25 / 29	48	49%	20%	100%	3.2	0.2	3.3	161	134	6	0.0	0	1.03	0
20 / 24	36	57%	20%	100%	3.2	0.2	3.3	118	154	6	0.0	0	1.03	0
15 / 19	24	65%	20%	100%	3.2	0.2	3.3	79	175	5	0.0	0	1.03	0
10 / 14	18	73%	20%	100%	3.2	0.2	3.3	61	195	4	0.0	0	1.03	0
5 / 9	14	81%	20%	100%	3.2	0.2	3.3	47	216	4	0.0	0	1.03	0
0 / 4	8	89%	20%	100%	3.2	0.2	3.3	26	237	2	0.0	0	1.03	0
-5 / -1	3	97%	20%	100%	3.2	0.2	3.3	10	257	1	0.0	0	1.03	0
-10 / -6	2	100%	20%	100%	3.2	0.2	3.3	5	268	1	0.0	0	1.03	0
-15 / -11	1	100%	20%	100%	3.2	0.2	3.3	2	273	0	0.0	0	1.03	0
-20 / -16	0	100%	20%	100%	3.2	0.2	3.3	1	278	0	0.0	0	1.03	0
	646							2,142		42		687		725

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Energy Savings Analysis - EMS Improvements

Building: Oak Hill Middle School		Existing	Proposed	
Unit #: AHU-12	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Kitchen	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: MAU	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	8.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	1,419	0	0	122	1,419	Fans	2.2 kW
8 AM - 4 PM	Occupied	4,850	0	0	322	4,850	Cooling	0.0 kW
4 PM - 12 AM	Occupied	275	0	0	21	275	Total	2.2 kW
All	Unoccupied	0	0	0	0	0		
Totals		6,545	0	0	465	6,545		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	1,419	0	0	122	1,419	Fans	2.2 kW
8 AM - 4 PM	Occupied	4,278	0	0	284	4,278	Cooling	0.0 kW
4 PM - 12 AM	Occupied	275	0	0	21	275	Total	2.2 kW
All	Unoccupied	0	0	0	0	0		
Totals		5,973	0	0	427	5,973		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	0	0	0	0	0	Fans	0.0 kW
8 AM - 4 PM	Occupied	572	0	0	38	572	Cooling	0.0 kW
4 PM - 12 AM	Occupied	0	0	0	0	0	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		572	0	0	38	572		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: AHU-12
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	13.60	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	12.61	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	11.62	0
80 / 84	1	0%	77%	100%	2.2	0.0	2.2	1	0	0	0.0	0	10.63	0
75 / 79	6	0%	68%	100%	2.2	0.0	2.2	13	0	0	0.0	0	9.64	0
70 / 74	26	0%	59%	100%	2.2	0.0	2.2	58	0	0	0.0	0	8.65	0
65 / 69	49	0%	50%	100%	2.2	0.0	2.2	108	0	0	0.0	0	8.25	0
60 / 64	58	0%	41%	100%	2.2	0.0	2.2	127	26	0	0.0	0	8.25	0
55 / 59	60	0%	32%	100%	2.2	0.0	2.2	132	65	0	0.0	0	8.25	0
50 / 54	56	0%	24%	100%	2.2	0.0	2.2	124	104	1	0.0	0	8.25	0
45 / 49	54	17%	20%	100%	2.2	0.0	2.2	118	197	3	0.0	0	8.25	0
40 / 44	53	25%	20%	100%	2.2	0.0	2.2	117	241	6	0.0	0	8.25	0
35 / 39	61	33%	20%	100%	2.2	0.0	2.2	133	285	12	0.0	0	8.25	0
30 / 34	69	41%	20%	100%	2.2	0.0	2.2	151	334	20	0.0	0	8.25	0
25 / 29	48	49%	20%	100%	2.2	0.0	2.2	107	382	18	0.0	0	8.25	0
20 / 24	36	57%	20%	100%	2.2	0.0	2.2	78	431	17	0.0	0	8.25	0
15 / 19	24	65%	20%	100%	2.2	0.0	2.2	53	480	13	0.0	0	8.25	0
10 / 14	18	73%	20%	100%	2.2	0.0	2.2	40	529	12	0.0	0	8.25	0
5 / 9	14	81%	20%	100%	2.2	0.0	2.2	31	578	10	0.0	0	8.25	0
0 / 4	8	89%	20%	100%	2.2	0.0	2.2	18	627	6	0.0	0	8.25	0
-5 / -1	3	97%	20%	100%	2.2	0.0	2.2	6	676	2	0.0	0	8.25	0
-10 / -6	2	100%	20%	100%	2.2	0.0	2.2	3	715	1	0.0	0	8.25	0
-15 / -11	1	100%	20%	100%	2.2	0.0	2.2	1	748	1	0.0	0	8.25	0
-20 / -16	0	100%	20%	100%	2.2	0.0	2.2	0	781	0	0.0	0	8.25	0
646					1,419				122		0			

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Estimated Annual Energy Usage - EMS Improvements

Building: Oak Hill Middle School		Proposed	
Unit #: AHU-12	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Kitchen	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: MAU	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	D	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	8.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	1,419	0	0	122	1,419	Fans	2.2 kW
8 AM - 4 PM	Occupied	4,278	0	0	284	4,278	Cooling	0.0 kW
4 PM - 12 AM	Occupied	275	0	0	21	275	Total	2.2 kW
All	Unoccupied	0	0	0	0	0		
Totals		5,973	0	0	427	5,973		

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Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: AHU-12
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.70	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.58	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.45	0
80 / 84	1	0%	77%	100%	2.2	0.0	2.2	1	0	0	0.0	0	1.33	0
75 / 79	6	0%	68%	100%	2.2	0.0	2.2	13	0	0	0.0	0	1.20	0
70 / 74	26	0%	59%	100%	2.2	0.0	2.2	58	0	0	0.0	0	1.08	0
65 / 69	49	0%	50%	100%	2.2	0.0	2.2	108	0	0	0.0	0	1.03	0
60 / 64	58	0%	41%	100%	2.2	0.0	2.2	127	26	0	0.0	0	1.03	0
55 / 59	60	0%	32%	100%	2.2	0.0	2.2	132	65	0	0.0	0	1.03	0
50 / 54	56	0%	24%	100%	2.2	0.0	2.2	124	104	1	0.0	0	1.03	0
45 / 49	54	17%	20%	100%	2.2	0.0	2.2	118	197	3	0.0	0	1.03	0
40 / 44	53	25%	20%	100%	2.2	0.0	2.2	117	241	6	0.0	0	1.03	0
35 / 39	61	33%	20%	100%	2.2	0.0	2.2	133	285	12	0.0	0	1.03	0
30 / 34	69	41%	20%	100%	2.2	0.0	2.2	151	334	20	0.0	0	1.03	0
25 / 29	48	49%	20%	100%	2.2	0.0	2.2	107	382	18	0.0	0	1.03	0
20 / 24	36	57%	20%	100%	2.2	0.0	2.2	78	431	17	0.0	0	1.03	0
15 / 19	24	65%	20%	100%	2.2	0.0	2.2	53	480	13	0.0	0	1.03	0
10 / 14	18	73%	20%	100%	2.2	0.0	2.2	40	529	12	0.0	0	1.03	0
5 / 9	14	81%	20%	100%	2.2	0.0	2.2	31	578	10	0.0	0	1.03	0
0 / 4	8	89%	20%	100%	2.2	0.0	2.2	18	627	6	0.0	0	1.03	0
-5 / -1	3	97%	20%	100%	2.2	0.0	2.2	6	676	2	0.0	0	1.03	0
-10 / -6	2	100%	20%	100%	2.2	0.0	2.2	3	715	1	0.0	0	1.03	0
-15 / -11	1	100%	20%	100%	2.2	0.0	2.2	1	748	1	0.0	0	1.03	0
-20 / -16	0	100%	20%	100%	2.2	0.0	2.2	0	781	0	0.0	0	1.03	0
646					1,419				122		0			

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Energy Savings Analysis - EMS Improvements

Building: Oak Hill Middle School		Existing	Proposed	
Unit #: AHU-13,14	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Corridors	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: MAU	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	8.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	473	0	0	0	473	Fans	0.7 kW
8 AM - 4 PM	Occupied	1,617	0	0	0	1,617	Cooling	0.0 kW
4 PM - 12 AM	Occupied	92	0	0	0	92	Total	0.7 kW
All	Unoccupied	0	0	0	0	0		
Totals		2,182	0	0	0	2,182		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	473	0	0	0	473	Fans	0.7 kW
8 AM - 4 PM	Occupied	1,426	0	0	0	1,426	Cooling	0.0 kW
4 PM - 12 AM	Occupied	92	0	0	0	92	Total	0.7 kW
All	Unoccupied	0	0	0	0	0		
Totals		1,991	0	0	0	1,991		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	0	0	0	0	0	Fans	0.0 kW
8 AM - 4 PM	Occupied	191	0	0	0	191	Cooling	0.0 kW
4 PM - 12 AM	Occupied	0	0	0	0	0	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		191	0	0	0	191		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: AHU-13,14
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	13.60	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	12.61	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	11.62	0
80 / 84	1	0%	77%	100%	0.7	0.0	0.7	0	0	0	0.0	0	10.63	0
75 / 79	6	0%	68%	100%	0.7	0.0	0.7	4	0	0	0.0	0	9.64	0
70 / 74	26	0%	59%	100%	0.7	0.0	0.7	19	0	0	0.0	0	8.65	0
65 / 69	49	0%	50%	100%	0.7	0.0	0.7	36	0	0	0.0	0	8.25	0
60 / 64	58	0%	41%	100%	0.7	0.0	0.7	42	0	0	0.0	0	8.25	0
55 / 59	60	0%	32%	100%	0.7	0.0	0.7	44	0	0	0.0	0	8.25	0
50 / 54	56	0%	24%	100%	0.7	0.0	0.7	41	0	0	0.0	0	8.25	0
45 / 49	54	17%	20%	100%	0.7	0.0	0.7	39	0	0	0.0	0	8.25	0
40 / 44	53	25%	20%	100%	0.7	0.0	0.7	39	0	0	0.0	0	8.25	0
35 / 39	61	33%	20%	100%	0.7	0.0	0.7	44	0	0	0.0	0	8.25	0
30 / 34	69	41%	20%	100%	0.7	0.0	0.7	50	0	0	0.0	0	8.25	0
25 / 29	48	49%	20%	100%	0.7	0.0	0.7	36	0	0	0.0	0	8.25	0
20 / 24	36	57%	20%	100%	0.7	0.0	0.7	26	0	0	0.0	0	8.25	0
15 / 19	24	65%	20%	100%	0.7	0.0	0.7	18	0	0	0.0	0	8.25	0
10 / 14	18	73%	20%	100%	0.7	0.0	0.7	13	0	0	0.0	0	8.25	0
5 / 9	14	81%	20%	100%	0.7	0.0	0.7	10	0	0	0.0	0	8.25	0
0 / 4	8	89%	20%	100%	0.7	0.0	0.7	6	0	0	0.0	0	8.25	0
-5 / -1	3	97%	20%	100%	0.7	0.0	0.7	2	0	0	0.0	0	8.25	0
-10 / -6	2	100%	20%	100%	0.7	0.0	0.7	1	0	0	0.0	0	8.25	0
-15 / -11	1	100%	20%	100%	0.7	0.0	0.7	0	0	0	0.0	0	8.25	0
-20 / -16	0	100%	20%	100%	0.7	0.0	0.7	0	0	0	0.0	0	8.25	0
646					473				0		0		0	

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Estimated Annual Energy Usage - EMS Improvements

Building: Oak Hill Middle School		Proposed	
Unit #: AHU-13,14	Scheduling And Setback Control	Y	Y = Included, N = Not Included
Area Served: Corridors	Supply And Return Fan VFD's	N	Y = Included, N = Not Included
System Type: MAU	Demand-Controlled Ventilation	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	D	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	8.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	473	0	0	0	473	Fans	0.7 kW
8 AM - 4 PM	Occupied	1,426	0	0	0	1,426	Cooling	0.0 kW
4 PM - 12 AM	Occupied	92	0	0	0	92	Total	0.7 kW
All	Unoccupied	0	0	0	0	0		
Totals		1,991	0	0	0	1,991		

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Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: AHU-13,14
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.70	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.58	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.45	0
80 / 84	1	0%	77%	100%	0.7	0.0	0.7	0	0	0	0.0	0	1.33	0
75 / 79	6	0%	68%	100%	0.7	0.0	0.7	4	0	0	0.0	0	1.20	0
70 / 74	26	0%	59%	100%	0.7	0.0	0.7	19	0	0	0.0	0	1.08	0
65 / 69	49	0%	50%	100%	0.7	0.0	0.7	36	0	0	0.0	0	1.03	0
60 / 64	58	0%	41%	100%	0.7	0.0	0.7	42	0	0	0.0	0	1.03	0
55 / 59	60	0%	32%	100%	0.7	0.0	0.7	44	0	0	0.0	0	1.03	0
50 / 54	56	0%	24%	100%	0.7	0.0	0.7	41	0	0	0.0	0	1.03	0
45 / 49	54	17%	20%	100%	0.7	0.0	0.7	39	0	0	0.0	0	1.03	0
40 / 44	53	25%	20%	100%	0.7	0.0	0.7	39	0	0	0.0	0	1.03	0
35 / 39	61	33%	20%	100%	0.7	0.0	0.7	44	0	0	0.0	0	1.03	0
30 / 34	69	41%	20%	100%	0.7	0.0	0.7	50	0	0	0.0	0	1.03	0
25 / 29	48	49%	20%	100%	0.7	0.0	0.7	36	0	0	0.0	0	1.03	0
20 / 24	36	57%	20%	100%	0.7	0.0	0.7	26	0	0	0.0	0	1.03	0
15 / 19	24	65%	20%	100%	0.7	0.0	0.7	18	0	0	0.0	0	1.03	0
10 / 14	18	73%	20%	100%	0.7	0.0	0.7	13	0	0	0.0	0	1.03	0
5 / 9	14	81%	20%	100%	0.7	0.0	0.7	10	0	0	0.0	0	1.03	0
0 / 4	8	89%	20%	100%	0.7	0.0	0.7	6	0	0	0.0	0	1.03	0
-5 / -1	3	97%	20%	100%	0.7	0.0	0.7	2	0	0	0.0	0	1.03	0
-10 / -6	2	100%	20%	100%	0.7	0.0	0.7	1	0	0	0.0	0	1.03	0
-15 / -11	1	100%	20%	100%	0.7	0.0	0.7	0	0	0	0.0	0	1.03	0
-20 / -16	0	100%	20%	100%	0.7	0.0	0.7	0	0	0	0.0	0	1.03	0
	646							473		0		0		0

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Energy Savings Analysis - EMS Improvements

Building: Oak Hill Middle School		Existing	Proposed	
Unit #: EFs - 1, 2, 12-19, 22, 25	Scheduling And Setback Control	Y	Y	Y = Included, N = Not Included
Area Served: Building	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Exhaust	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	1.0	8.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	S	S	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	4,514	0	0	0	4,514	Fans	7.0 kW
8 AM - 4 PM	Occupied	15,424	0	0	0	15,424	Cooling	0.0 kW
4 PM - 12 AM	Occupied	874	0	0	0	874	Total	7.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		20,812	0	0	0	20,812		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	4,514	0	0	0	4,514	Fans	7.0 kW
8 AM - 4 PM	Occupied	13,605	0	0	0	13,605	Cooling	0.0 kW
4 PM - 12 AM	Occupied	874	0	0	0	874	Total	7.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		18,993	0	0	0	18,993		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	0	0	0	0	0	Fans	0.0 kW
8 AM - 4 PM	Occupied	1,819	0	0	0	1,819	Cooling	0.0 kW
4 PM - 12 AM	Occupied	0	0	0	0	0	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		1,819	0	0	0	1,819		

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: EFs - 1, 2, 12-19, 22, 25
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	####	0
80 / 84	1	0%	77%	100%	7.0	0.0	7.0	5	0	0	0.0	0	####	0
75 / 79	6	0%	68%	100%	7.0	0.0	7.0	42	0	0	0.0	0	9.64	0
70 / 74	26	0%	59%	100%	7.0	0.0	7.0	184	0	0	0.0	0	8.65	0
65 / 69	49	0%	50%	100%	7.0	0.0	7.0	342	0	0	0.0	0	8.25	0
60 / 64	58	0%	41%	100%	7.0	0.0	7.0	405	0	0	0.0	0	8.25	0
55 / 59	60	0%	32%	100%	7.0	0.0	7.0	419	0	0	0.0	0	8.25	0
50 / 54	56	0%	24%	100%	7.0	0.0	7.0	393	0	0	0.0	0	8.25	0
45 / 49	54	17%	20%	100%	7.0	0.0	7.0	374	0	0	0.0	0	8.25	0
40 / 44	53	25%	20%	100%	7.0	0.0	7.0	371	0	0	0.0	0	8.25	0
35 / 39	61	33%	20%	100%	7.0	0.0	7.0	424	0	0	0.0	0	8.25	0
30 / 34	69	41%	20%	100%	7.0	0.0	7.0	480	0	0	0.0	0	8.25	0
25 / 29	48	49%	20%	100%	7.0	0.0	7.0	339	0	0	0.0	0	8.25	0
20 / 24	36	57%	20%	100%	7.0	0.0	7.0	249	0	0	0.0	0	8.25	0
15 / 19	24	65%	20%	100%	7.0	0.0	7.0	167	0	0	0.0	0	8.25	0
10 / 14	18	73%	20%	100%	7.0	0.0	7.0	128	0	0	0.0	0	8.25	0
5 / 9	14	81%	20%	100%	7.0	0.0	7.0	99	0	0	0.0	0	8.25	0
0 / 4	8	89%	20%	100%	7.0	0.0	7.0	56	0	0	0.0	0	8.25	0
-5 / -1	3	97%	20%	100%	7.0	0.0	7.0	20	0	0	0.0	0	8.25	0
-10 / -6	2	100%	20%	100%	7.0	0.0	7.0	11	0	0	0.0	0	8.25	0
-15 / -11	1	100%	20%	100%	7.0	0.0	7.0	5	0	0	0.0	0	8.25	0
-20 / -16	0	100%	20%	100%	7.0	0.0	7.0	2	0	0	0.0	0	8.25	0
646								4,514		0		0		0

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Estimated Annual Energy Usage - EMS Improvements

Building: Oak Hill Middle School		Proposed	
Unit #: EFs - 1, 2, 12-19, 22, 25	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Building	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: Exhaust	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	D	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	8.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	S	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - EMS Improvements							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	7.0 kW
12 M - 8 AM	Occupied	4,514	0	0	0	4,514	Cooling	0.0 kW
8 AM - 4 PM	Occupied	13,605	0	0	0	13,605		
4 PM - 12 AM	Occupied	874	0	0	0	874		
All	Unoccupied	0	0	0	0	0		
Totals		18,993	0	0	0	18,993	Total	7.0 kW

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Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: EFs - 1, 2, 12-19, 22, 25
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.70	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.58	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.45	0
80 / 84	1	0%	77%	100%	7.0	0.0	7.0	5	0	0	0.0	0	1.33	0
75 / 79	6	0%	68%	100%	7.0	0.0	7.0	42	0	0	0.0	0	1.20	0
70 / 74	26	0%	59%	100%	7.0	0.0	7.0	184	0	0	0.0	0	1.08	0
65 / 69	49	0%	50%	100%	7.0	0.0	7.0	342	0	0	0.0	0	1.03	0
60 / 64	58	0%	41%	100%	7.0	0.0	7.0	405	0	0	0.0	0	1.03	0
55 / 59	60	0%	32%	100%	7.0	0.0	7.0	419	0	0	0.0	0	1.03	0
50 / 54	56	0%	24%	100%	7.0	0.0	7.0	393	0	0	0.0	0	1.03	0
45 / 49	54	17%	20%	100%	7.0	0.0	7.0	374	0	0	0.0	0	1.03	0
40 / 44	53	25%	20%	100%	7.0	0.0	7.0	371	0	0	0.0	0	1.03	0
35 / 39	61	33%	20%	100%	7.0	0.0	7.0	424	0	0	0.0	0	1.03	0
30 / 34	69	41%	20%	100%	7.0	0.0	7.0	480	0	0	0.0	0	1.03	0
25 / 29	48	49%	20%	100%	7.0	0.0	7.0	339	0	0	0.0	0	1.03	0
20 / 24	36	57%	20%	100%	7.0	0.0	7.0	249	0	0	0.0	0	1.03	0
15 / 19	24	65%	20%	100%	7.0	0.0	7.0	167	0	0	0.0	0	1.03	0
10 / 14	18	73%	20%	100%	7.0	0.0	7.0	128	0	0	0.0	0	1.03	0
5 / 9	14	81%	20%	100%	7.0	0.0	7.0	99	0	0	0.0	0	1.03	0
0 / 4	8	89%	20%	100%	7.0	0.0	7.0	56	0	0	0.0	0	1.03	0
-5 / -1	3	97%	20%	100%	7.0	0.0	7.0	20	0	0	0.0	0	1.03	0
-10 / -6	2	100%	20%	100%	7.0	0.0	7.0	11	0	0	0.0	0	1.03	0
-15 / -11	1	100%	20%	100%	7.0	0.0	7.0	5	0	0	0.0	0	1.03	0
-20 / -16	0	100%	20%	100%	7.0	0.0	7.0	2	0	0	0.0	0	1.03	0
	646							4,514		0		0		0

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Energy Savings Analysis - EMS Improvements

Building: Oak Hill Middle School	
Unit #: HWP - 1, 2, 3	
Area Served: Hot Water Equipment	
System Type: Pump	
Annual Time Period: All Year	

Summary Of Estimated Annual Energy Usage - Existing

Daily Time Period	System Mode	Pump Total Annual kWh				Total Annual kWh
12 M - 8 AM	Occupied	9,440				9,440
8 AM - 4 PM	Occupied	9,268				9,268
4 PM - 12 AM	Occupied	9,424				9,424
All	Unoccupied	0				0
Totals		28,132				28,132

Summary Of Estimated Annual Energy Usage - Proposed

Daily Time Period	System Mode	Pump Total Annual kWh				Total Annual kWh
12 M - 8 AM	Occupied	9,440				9,440
8 AM - 4 PM	Occupied	8,171				8,171
4 PM - 12 AM	Occupied	8,812				8,812
All	Unoccupied	0				0
Totals		26,423				26,423

Summary Of Estimated Annual Energy Savings

Daily Time Period	System Mode	Pump Total Annual kWh				Total Annual kWh
12 M - 8 AM	Occupied	0				0
8 AM - 4 PM	Occupied	1,097				1,097
4 PM - 12 AM	Occupied	612				612
All	Unoccupied	0				0
Totals		1,708				1,708

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Energy Savings Analysis - EMS Improvements

I. Existing HVAC Equipment Specifications

Building: Oak Hill Middle School				
Unit #: HWP - 1, 2, 3			Preheat	Main Heating
Area Served: Hot Water Equipment				
Unit Type: Pump			---	---
<u>Design Flow And Pump Motor Data:</u>				
	Supply Air CFM	Return Air CFM	Minimum Fresh Air CFM	
Design Airflow Data:	1	0	1	
		Hot Water Pump	Return Fan	
Motor Nameplate HP:	10.000	0.0		
Estimated Load Factor:	80%	80%		
Pump Motor Full Load BHP:	8.0	0.0		
Motor Efficiency:	91.7%	91.7%		
VFD (Yes/No):	No	No		
VFD Losses:	0%	0%		
Pump Motor Full Load Input kw:	6.5	0.0		
Pump Motor Minimum Input kw:	6.5	0.0		
Pump Outside Air "Lockout" Temperature:		70 °F		
<u>Outdoor Design Conditions:</u>				
Boston, Massachusetts				
	DB	MCWB	Enthalpy	
Summer - ASHRAE .4%:	91 °F	73 °F	36.5 Btu/Lb	
	DB	WB	Moisture	
Winter - ASHRAE 99.6%:	7 °F	12 °F	19.1 Gr/Lb	

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Energy Savings Analysis - EMS Improvements

II. HVAC System Operating Schedule Information

Building: Oak Hill Middle School				
Unit #: HWP - 1, 2, 3				
Area Served: Hot Water Equipment				
Annual Time Period: All Year				
<u>Daily/Weekly Occupancy Schedule:</u>				
			Percent Occupied	
			Times By Daily Time Period	
			12 AM	8 AM
			To	To
			8 AM	4 PM
			To	To
			4 PM	12 AM
	Start	End		
Mon:	12:00 AM	12:00 AM	100%	100%
Tue:	12:00 AM	12:00 AM	100%	100%
Wed:	12:00 AM	12:00 AM	100%	100%
Thu:	12:00 AM	12:00 AM	100%	100%
Fri:	12:00 AM	12:00 AM	100%	100%
Sat:	12:00 AM	12:00 AM	100%	100%
Sun:	12:00 AM	12:00 AM	100%	100%
Operating Percentage - Annual Total			100%	100%
Annual Occupied Hours Per Period			2,918	2,920
Total Annual Occupied Hours:			8,754	100%
<u>Annual Months Of Operation At Above Weekly Schedule:</u>				
	Month	System	Heating	Cooling
	January	100%	0%	0%
	February	100%	0%	0%
	March	100%	0%	0%
	April	50%	0%	0%
	May	0%	0%	0%
	June	0%	0%	0%
	July	0%	0%	0%
	August	0%	0%	0%
	September	0%	0%	0%
	October	50%	0%	0%
	November	100%	0%	0%
	December	100%	0%	0%

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Energy Savings Analysis - EMS Improvements

III. HVAC System Setpoints And Operating Parameters

Building: Oak Hill Middle School						
Unit #: HWP - 1, 2, 3						
Area Served: Hot Water Equipment						
Space Condition Setpoints:						
			Min.	Max.		
Space Temperature - Unoccupied:			55 °F	85 °F		
Occupied Space Heating Temperature Setpoint:			65 °F	70		
Occupied Space Cooling Temperature Setpoint:			74 °F	74		
Estimated Maximum Space Relative Humidity:			55% RH			
Estimated Maximum Space Air Enthalpy:			28.7 Btu/Lb			
Space Airflow Setpoints:						
(For Temperature-Controlled VFD Applications)						
Space Heating Mode			Space Cooling Mode			
Percent Space Heating Load	Supply Fan Percent Speed	Return Fan Percent Speed	Percent Space Cooling Load	Supply Fan Percent Speed	Return Fan Percent Speed	
100%	60%	50%	100%	100%	90%	
50%	40%	30%	70%	80%	70%	
HVAC System Operating Parameters - Space Heating Mode:						
Peak Load - Percent Of Installed Capacity:			90%			
Estimated Peak Space Heating Load:			0 MBH			
Estimated Space Heating Balance Point OA Temperatures:						
	12 AM	To	8 AM	50 °F	0.60	
	8 AM	To	4 PM	50 °F	0.60	
	4 PM	To	12 AM	50 °F	0.60	
	All Unoccupied			50 °F	0.15	
Estimated Percent Of Space Internal Gains To Heating Load:			20%			

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: HWP - 1, 2, 3
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Flow	Pump Energy Use	
	12 AM To 8 AM				Pump Energy Input kW	Pump Total kWh
	System Hours					
95 / 99	0	0%	100%	100%	0.0	0
90 / 94	0	0%	93%	100%	0.0	0
85 / 89	0	0%	82%	100%	0.0	0
80 / 84	0	0%	71%	100%	0.0	0
75 / 79	0	0%	60%	100%	0.0	0
70 / 74	0	0%	49%	100%	0.0	0
65 / 69	2	0%	38%	100%	6.5	13
60 / 64	15	0%	27%	100%	6.5	98
55 / 59	31	0%	16%	100%	6.5	198
50 / 54	57	0%	4%	100%	6.5	368
45 / 49	81	16%	0%	100%	6.5	527
40 / 44	123	24%	0%	100%	6.5	797
35 / 39	199	33%	0%	100%	6.5	1,292
30 / 34	267	41%	0%	100%	6.5	1,738
25 / 29	205	50%	0%	100%	6.5	1,331
20 / 24	159	59%	0%	100%	6.5	1,032
15 / 19	108	67%	0%	100%	6.5	700
10 / 14	83	76%	0%	100%	6.5	540
5 / 9	64	84%	0%	100%	6.5	417
0 / 4	36	93%	0%	100%	6.5	234
-5 / -1	13	100%	0%	100%	6.5	85
-10 / -6	7	100%	0%	100%	6.5	46
-15 / -11	3	100%	0%	100%	6.5	20
-20 / -16	1	100%	0%	100%	6.5	7
	1,451					9,440

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Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls (Continued)

Building: Oak Hill Middle School
HVAC System: HWP - 1, 2, 3
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Flow	Pump Energy Use	
	8 AM To 4 PM				Pump Energy Input kW	Pump Total kWh
	System Hours					
95 / 99	0	0%	100%	100%	0.0	0
90 / 94	0	0%	93%	100%	0.0	0
85 / 89	1	0%	82%	100%	0.0	0
80 / 84	2	0%	71%	100%	0.0	0
75 / 79	9	0%	60%	100%	0.0	0
70 / 74	15	0%	49%	100%	0.0	0
65 / 69	31	0%	38%	100%	6.5	198
60 / 64	54	0%	27%	100%	6.5	351
55 / 59	84	0%	16%	100%	6.5	547
50 / 54	115	0%	4%	100%	6.5	745
45 / 49	139	16%	0%	100%	6.5	905
40 / 44	205	24%	0%	100%	6.5	1,334
35 / 39	225	33%	0%	100%	6.5	1,461
30 / 34	212	41%	0%	100%	6.5	1,376
25 / 29	148	50%	0%	100%	6.5	963
20 / 24	94	59%	0%	100%	6.5	612
15 / 19	63	67%	0%	100%	6.5	410
10 / 14	32	76%	0%	100%	6.5	208
5 / 9	16	84%	0%	100%	6.5	104
0 / 4	6	93%	0%	100%	6.5	39
-5 / -1	2	100%	0%	100%	6.5	13
-10 / -6	0	100%	0%	100%	0.0	0
-15 / -11	0	100%	0%	100%	0.0	0
-20 / -16	0	100%	0%	100%	0.0	0
1,450						9,268

NORESCO

Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls (Continued)

Building: Oak Hill Middle School
HVAC System: HWP - 1, 2, 3
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Flow	Pump Energy Use	
	4 PM To 12 AM				Pump Energy Input kW	Pump Total kWh
	System Hours					
95 / 99	0	0%	100%	100%	0.0	0
90 / 94	0	0%	93%	100%	0.0	0
85 / 89	0	0%	82%	100%	0.0	0
80 / 84	0	0%	71%	100%	0.0	0
75 / 79	1	0%	60%	100%	0.0	0
70 / 74	4	0%	49%	100%	0.0	0
65 / 69	14	0%	38%	100%	6.5	88
60 / 64	29	0%	27%	100%	6.5	189
55 / 59	52	0%	16%	100%	6.5	335
50 / 54	77	0%	4%	100%	6.5	501
45 / 49	111	16%	0%	100%	6.5	719
40 / 44	167	24%	0%	100%	6.5	1,087
35 / 39	240	33%	0%	100%	6.5	1,559
30 / 34	263	41%	0%	100%	6.5	1,712
25 / 29	183	50%	0%	100%	6.5	1,191
20 / 24	129	59%	0%	100%	6.5	840
15 / 19	86	67%	0%	100%	6.5	560
10 / 14	54	76%	0%	100%	6.5	351
5 / 9	31	84%	0%	100%	6.5	202
0 / 4	9	93%	0%	100%	6.5	59
-5 / -1	4	100%	0%	100%	6.5	26
-10 / -6	1	100%	0%	100%	6.5	7
-15 / -11	0	100%	0%	100%	0.0	0
-20 / -16	0	100%	0%	100%	0.0	0
1,453						9,424

NORESCO

Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls (Continued)

Building: Oak Hill Middle School
HVAC System: HWP - 1, 2, 3
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Flow	Pump Energy Use	
	All Unocc. Hours				Pump Energy Input kW	Pump Total kWh
	System Hours					
95 / 99	0	0%	0%	0%	0.0	0
90 / 94	0	0%	0%	0%	0.0	0
85 / 89	0	0%	0%	0%	0.0	0
80 / 84	0	0%	0%	0%	0.0	0
75 / 79	0	0%	0%	0%	0.0	0
70 / 74	0	0%	0%	0%	0.0	0
65 / 69	0	0%	0%	0%	0.0	0
60 / 64	0	0%	0%	0%	0.0	0
55 / 59	0	0%	0%	0%	0.0	0
50 / 54	0	0%	0%	0%	0.0	0
45 / 49	0	0%	0%	0%	0.0	0
40 / 44	0	0%	0%	0%	0.0	0
35 / 39	0	0%	0%	0%	0.0	0
30 / 34	0	0%	0%	0%	0.0	0
25 / 29	0	0%	0%	0%	0.0	0
20 / 24	0	0%	0%	0%	0.0	0
15 / 19	0	0%	0%	0%	0.0	0
10 / 14	0	0%	0%	0%	0.0	0
5 / 9	0	0%	0%	0%	0.0	0
0 / 4	0	0%	0%	0%	0.0	0
-5 / -1	0	0%	0%	0%	0.0	0
-10 / -6	0	0%	0%	0%	0.0	0
-15 / -11	0	0%	0%	0%	0.0	0
-20 / -16	0	0%	0%	0%	0.0	0
	0					0

NORESCO

Estimated Annual Energy Usage - EMS Improvements

Building: Oak Hill Middle School	
Unit #: HWP - 1, 2, 3	
Area Served: Hot Water Equipment	
System Type: Pump	
Annual Time Period: All Year	

Summary Of Estimated Annual Energy Usage - EMS Improvements						
Daily Time Period	System Mode	Pump Total Annual kWh				Total Annual kWh
12 M - 8 AM	Occupied	9,440				9,440
8 AM - 4 PM	Occupied	8,171				8,171
4 PM - 12 AM	Occupied	8,812				8,812
All	Unoccupied	0				0
Totals		26,423				26,423

NORESCO

Estimated Annual Energy Usage - EMS Improvements

I. Proposed HVAC Equipment Specifications

Building: Oak Hill Middle School				
Unit #: HWP - 1, 2, 3			Preheat	Main Heating
Area Served: Hot Water Equipment				
Unit Type: Pump			---	---
<u>Design Airflow And Fan Motor Data:</u>				
	Supply Air CFM	Return Air CFM	Minimum Fresh Air CFM	Power Exhaust CFM
Design Airflow Data:	1	0	1	0
	Supply Fan	Return Fan		
Motor Nameplate HP:	10.000	0.0		
Estimated Load Factor:	80%	80%		
Fan Motor Full Load BHP:	8.0	0.0		
Motor Efficiency:	91.7%	91.7%		
VFD (Yes/No):	No	No		
VFD Losses:	0%	0%		
Fan Motor Full Load Input kw:	6.5	0.0		
Fan Motor Minimum Input kw:	6.5	0.0		
Pump Outside Air "Lockout" Temperature: 55 °F				
<u>Outdoor Design Conditions:</u>				
Boston, Massachusetts				
	DB	MCWB	Enthalpy	
Summer - ASHRAE .4%:	91 °F	73 °F	36.5 Btu/Lb	
	DB	WB	Moisture	
Winter - ASHRAE 99.6%:	7 °F	12 °F	19.1 Gr/Lb	

NORESCO

Estimated Annual Energy Usage - EMS Improvements

II. HVAC System Operating Schedule Information

Building: Oak Hill Middle School					
Unit #: HWP - 1, 2, 3					
Area Served: Hot Water Equipment					
Annual Time Period: All Year					
<u>Daily/Weekly Occupancy Schedule:</u>					
Percent Occupied					
Times By Daily Time Period					
		12 AM To 8 AM	8 AM To 4 PM	4 PM To 12 AM	
	Start	End			
Mon:	12:00 AM	12:00 AM	100%	100%	100%
Tue:	12:00 AM	12:00 AM	100%	100%	100%
Wed:	12:00 AM	12:00 AM	100%	100%	100%
Thu:	12:00 AM	12:00 AM	100%	100%	100%
Fri:	12:00 AM	12:00 AM	100%	100%	100%
Sat:	12:00 AM	12:00 AM	100%	100%	100%
Sun:	12:00 AM	12:00 AM	100%	100%	100%
Operating Percentage - Annual Total			100%	100%	100%
Annual Occupied Hours Per Period			2,918	2,916	2,920
Total Annual Occupied Hours:			8,754	100%	
<u>Annual Months Of Operation At Above Weekly Schedule:</u>					
	Month	System	Heating	Cooling	
	January	100%	0%	0%	
	February	100%	0%	0%	
	March	100%	0%	0%	
	April	50%	0%	0%	
	May	0%	0%	0%	
	June	0%	0%	0%	
	July	0%	0%	0%	
	August	0%	0%	0%	
	September	0%	0%	0%	
	October	50%	0%	0%	
	November	100%	0%	0%	
	December	100%	0%	0%	

NORESCO

Estimated Annual Energy Usage - EMS Improvements

III. HVAC System Setpoints And Operating Parameters

Building: Oak Hill Middle School					
Unit #: HWP - 1, 2, 3					
Area Served: Hot Water Equipment					
<u>Space Condition Setpoints:</u>					
		Min.		Max.	
Space Temperature - Unoccupied:		55 °F		85 °F	
Occupied Space Heating Temperature Setpoint:		70 °F			
Occupied Space Cooling Temperature Setpoint:		74 °F			
Estimated Maximum Space Relative Humidity:		55% RH			
Estimated Maximum Space Air Enthalpy:		28.7 Btu/Lb			
<u>Space Airflow Setpoints:</u>					
(For Temperature-Controlled VFD Applications)					
Space Heating Mode			Space Cooling Mode		
Percent Space Heating Load	Supply Fan Percent Speed	Return Fan Percent Speed	Percent Space Cooling Load	Supply Fan Percent Speed	Return Fan Percent Speed
100%	60%	50%	100%	100%	90%
50%	40%	30%	70%	80%	70%
<u>HVAC System Operating Parameters - Space Heating Mode:</u>					
Peak Load - Percent Of Installed Capacity:				90%	
Estimated Peak Space Heating Load:				0 MBH	
Estimated Space Heating Balance Point OA Temperatures:					
	12 AM	To	8 AM	50 °F	0.60
	8 AM	To	4 PM	50 °F	0.60
	4 PM	To	12 AM	50 °F	0.60
	All Unoccupied			50 °F	0.15
Estimated Percent Of Space Internal Gains To Heating Load:				20%	

NORESCO

Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Oak Hill Middle School
HVAC System: HWP - 1, 2, 3
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Flow	Pump Energy Use	
	12 AM To 8 AM				Pump Energy Input kW	Pump Total kWh
	System Hours					
95 / 99	0	0%	100%	100%	0.0	0
90 / 94	0	0%	93%	100%	0.0	0
85 / 89	0	0%	82%	100%	0.0	0
80 / 84	0	0%	71%	100%	0.0	0
75 / 79	0	0%	60%	100%	0.0	0
70 / 74	0	0%	49%	100%	0.0	0
65 / 69	2	0%	38%	100%	6.5	13
60 / 64	15	0%	27%	100%	6.5	98
55 / 59	31	0%	16%	100%	6.5	198
50 / 54	57	0%	4%	100%	6.5	368
45 / 49	81	17%	0%	100%	6.5	527
40 / 44	123	25%	0%	100%	6.5	797
35 / 39	199	33%	0%	100%	6.5	1,292
30 / 34	267	41%	0%	100%	6.5	1,738
25 / 29	205	49%	0%	100%	6.5	1,331
20 / 24	159	57%	0%	100%	6.5	1,032
15 / 19	108	65%	0%	100%	6.5	700
10 / 14	83	73%	0%	100%	6.5	540
5 / 9	64	81%	0%	100%	6.5	417
0 / 4	36	89%	0%	100%	6.5	234
-5 / -1	13	97%	0%	100%	6.5	85
-10 / -6	7	100%	0%	100%	6.5	46
-15 / -11	3	100%	0%	100%	6.5	20
-20 / -16	1	100%	0%	100%	6.5	7
	1,451					9,440

NORESCO

Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls (Continued)

Building: Oak Hill Middle School
HVAC System: HWP - 1, 2, 3
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Flow	Pump Energy Use	
	8 AM To 4 PM				Pump Energy Input kW	Pump Total kWh
	System Hours					
95 / 99	0	0%	100%	100%	0.0	0
90 / 94	0	0%	93%	100%	0.0	0
85 / 89	1	0%	82%	100%	0.0	0
80 / 84	2	0%	71%	100%	0.0	0
75 / 79	9	0%	60%	100%	0.0	0
70 / 74	15	0%	49%	100%	0.0	0
65 / 69	31	0%	38%	100%	0.0	0
60 / 64	54	0%	27%	100%	0.0	0
55 / 59	84	0%	16%	100%	0.0	0
50 / 54	115	0%	4%	100%	6.5	745
45 / 49	139	17%	0%	100%	6.5	905
40 / 44	205	25%	0%	100%	6.5	1,334
35 / 39	225	33%	0%	100%	6.5	1,461
30 / 34	212	41%	0%	100%	6.5	1,376
25 / 29	148	49%	0%	100%	6.5	963
20 / 24	94	57%	0%	100%	6.5	612
15 / 19	63	65%	0%	100%	6.5	410
10 / 14	32	73%	0%	100%	6.5	208
5 / 9	16	81%	0%	100%	6.5	104
0 / 4	6	89%	0%	100%	6.5	39
-5 / -1	2	97%	0%	100%	6.5	13
-10 / -6	0	100%	0%	100%	0.0	0
-15 / -11	0	100%	0%	100%	0.0	0
-20 / -16	0	100%	0%	100%	0.0	0
	1,450					8,171

NORESCO

Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls (Continued)

Building: Oak Hill Middle School
HVAC System: HWP - 1, 2, 3
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Flow	Pump Energy Use	
	4 PM To 12 AM System Hours				Pump Energy Input kW	Pump Total kWh
95 / 99	0	0%	100%	100%	0.0	0
90 / 94	0	0%	93%	100%	0.0	0
85 / 89	0	0%	82%	100%	0.0	0
80 / 84	0	0%	71%	100%	0.0	0
75 / 79	1	0%	60%	100%	0.0	0
70 / 74	4	0%	49%	100%	0.0	0
65 / 69	14	0%	38%	100%	0.0	0
60 / 64	29	0%	27%	100%	0.0	0
55 / 59	52	0%	16%	100%	0.0	0
50 / 54	77	0%	4%	100%	6.5	501
45 / 49	111	17%	0%	100%	6.5	719
40 / 44	167	25%	0%	100%	6.5	1,087
35 / 39	240	33%	0%	100%	6.5	1,559
30 / 34	263	41%	0%	100%	6.5	1,712
25 / 29	183	49%	0%	100%	6.5	1,191
20 / 24	129	57%	0%	100%	6.5	840
15 / 19	86	65%	0%	100%	6.5	560
10 / 14	54	73%	0%	100%	6.5	351
5 / 9	31	81%	0%	100%	6.5	202
0 / 4	9	89%	0%	100%	6.5	59
-5 / -1	4	97%	0%	100%	6.5	26
-10 / -6	1	100%	0%	100%	6.5	7
-15 / -11	0	100%	0%	100%	0.0	0
-20 / -16	0	100%	0%	100%	0.0	0
	1,453					8,812

NORESCO

Estimated Annual Energy Usage - EMS Improvements

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls (Continued)

Building: Oak Hill Middle School
HVAC System: HWP - 1, 2, 3
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Flow	Pump Energy Use	
	All Unocc. Hours				Pump Energy Input kW	Pump Total kWh
	System Hours					
95 / 99	0	0%	0%	0%	0.0	0
90 / 94	0	0%	0%	0%	0.0	0
85 / 89	0	0%	0%	0%	0.0	0
80 / 84	0	0%	0%	0%	0.0	0
75 / 79	0	0%	0%	0%	0.0	0
70 / 74	0	0%	0%	0%	0.0	0
65 / 69	0	0%	0%	0%	0.0	0
60 / 64	0	0%	0%	0%	0.0	0
55 / 59	0	0%	0%	0%	0.0	0
50 / 54	0	0%	0%	0%	0.0	0
45 / 49	0	0%	0%	0%	0.0	0
40 / 44	0	0%	0%	0%	0.0	0
35 / 39	0	0%	0%	0%	0.0	0
30 / 34	0	0%	0%	0%	0.0	0
25 / 29	0	0%	0%	0%	0.0	0
20 / 24	0	0%	0%	0%	0.0	0
15 / 19	0	0%	0%	0%	0.0	0
10 / 14	0	0%	0%	0%	0.0	0
5 / 9	0	0%	0%	0%	0.0	0
0 / 4	0	0%	0%	0%	0.0	0
-5 / -1	0	0%	0%	0%	0.0	0
-10 / -6	0	0%	0%	0%	0.0	0
-15 / -11	0	0%	0%	0%	0.0	0
-20 / -16	0	0%	0%	0%	0.0	0
	0					0

**Newton - Education Center
EMS Improvements**

Heating Energy Savings

I. Heating System Capacity Data And Operating Parameters

Building: Newton - Education Center					Daily/Weekly Occupancy Schedule:							
System: All Steam Space Heating Systems												
Area Served: All												
Annual Time Period: All Year												
Scheduling Control In Place (Y/N): Y												
					Building Occupancy Schedule By Weekday			Percent Occupied Times By Daily Time Period				
								12 AM To 8 AM	8 AM To 4 PM	4 PM To 12 AM		
<u>Heating System "Lockout" Outside Air Temperature And Space Temperatures</u>						Start	End					
<u>Estimated Under Existing Conditions With Limited Controls And Under Proposed</u>					Monday	12:00 AM	6:00 PM	100%	100%	25%		
<u>Conditions With Energy Management System Control:</u>					Tuesday	4:00 AM	6:30 PM	50%	100%	31%		
					Wednesday	6:00 AM	6:00 PM	25%	100%	25%		
					Thursday	5:00 AM	5:30 PM	38%	100%	19%		
					Friday	5:00 AM	6:00 PM	38%	100%	25%		
					Saturday	12:00 AM	12:00 AM	0%	0%	0%		
					Sunday	10:00 PM	11:59 PM	0%	0%	25%		
					Annual Total			36%	71%	21%		
					Annual Occupied Hours Per Period			1,042	2,083	626		
					Total Annual Occupied Hours			3,751	43%			
<u>Annual Months Of Operation At Above Weekly Schedule:</u>												
							Space Heating Enabled					
						Month						
						January	100%					
						February	100%					
						March	75%					
<u>Existing Space Heating Systems - Design Capacity Data</u>						April	50%					
						May	25%					
						June	0%					
						July	0%					
						August	0%					
						September	0%					
						October	25%					
						November	75%					
						December	100%					
<u>Existing Space Heating Systems - Design Capacity Data</u>												
Building Heated Floor Area - Square Feet					70,000							
Estimated Design Btu/Hour/SF					32							
Estimated Building U*A Factor - Btu/Hour/Deg. F					35,556							
Indoor Design Temperature					70 °F							
Outdoor Design Temperature					7 °F							

**Newton - Education Center Heating Energy Savings
EMS Improvements**

II. Estimated Annual Space Heating Energy Savings With EMS Control Of Space Heating Systems

Building: Newton - Education Center
HVAC System: All Steam Space Heating Systems
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	Heating Energy Savings 12 AM To 8 AM			Daily Time Period	Heating Energy Savings 8 AM To 4 PM			Daily Time Period	Heating Energy Savings 4 PM To 12 AM		
	12 AM To 8 AM	Existing Average Space Temp.	Proposed Average Space Temp. With EMS	Space Heating Annual MMBtu Saved	8 AM To 4 PM	Existing Average Space Temp.	Proposed Average Space Temp. With EMS	Space Heating Annual MMBtu Saved	4 PM To 12 AM	Existing Average Space Temp.	Proposed Average Space Temp. With EMS	Space Heating Annual MMBtu Saved
	Heating Hours				Heating Hours				Heating Hours			
95 / 99	0	65 °F	65 °F	0	0	74 °F	74 °F	0	0	75 °F	75 °F	0
90 / 94	0	65 °F	65 °F	0	0	74 °F	74 °F	0	0	75 °F	75 °F	0
85 / 89	0	65 °F	65 °F	0	1	74 °F	74 °F	0	0	75 °F	75 °F	0
80 / 84	0	65 °F	65 °F	0	3	74 °F	74 °F	0	0	75 °F	75 °F	0
75 / 79	0	65 °F	65 °F	0	8	74 °F	74 °F	0	1	75 °F	75 °F	0
70 / 74	0	65 °F	65 °F	0	13	74 °F	74 °F	0	1	75 °F	75 °F	0
65 / 69	2	65 °F	65 °F	0	23	74 °F	74 °F	0	3	75 °F	75 °F	0
60 / 64	5	65 °F	65 °F	1	37	74 °F	74 °F	16	6	75 °F	75 °F	3
55 / 59	11	65 °F	65 °F	3	52	74 °F	74 °F	31	10	75 °F	75 °F	7
50 / 54	19	65 °F	65 °F	0	68	74 °F	74 °F	0	15	75 °F	75 °F	0
45 / 49	27	62 °F	62 °F	0	83	73 °F	73 °F	0	21	74 °F	74 °F	0
40 / 44	39	62 °F	62 °F	0	126	73 °F	73 °F	0	31	74 °F	74 °F	0
35 / 39	61	62 °F	62 °F	0	143	73 °F	73 °F	0	44	74 °F	74 °F	0
30 / 34	310	62 °F	62 °F	0	214	73 °F	73 °F	0	276	74 °F	74 °F	0
25 / 29	219	60 °F	60 °F	0	148	72 °F	72 °F	0	185	72 °F	72 °F	0
20 / 24	161	60 °F	60 °F	0	94	72 °F	72 °F	0	129	72 °F	72 °F	0
15 / 19	108	60 °F	60 °F	0	63	72 °F	72 °F	0	86	72 °F	72 °F	0
10 / 14	83	60 °F	60 °F	0	32	72 °F	72 °F	0	54	72 °F	72 °F	0
5 / 9	64	60 °F	60 °F	0	16	72 °F	72 °F	0	31	72 °F	72 °F	0
0 / 4	36	60 °F	60 °F	0	6	72 °F	72 °F	0	9	72 °F	72 °F	0
-5 / -1	13	60 °F	60 °F	0	2	72 °F	72 °F	0	4	72 °F	72 °F	0
-10 / -6	7	60 °F	60 °F	0	0	72 °F	72 °F	0	1	72 °F	72 °F	0
-15 / -11	3	60 °F	60 °F	0	0	72 °F	72 °F	0	0	72 °F	72 °F	0
-20 / -16	1	60 °F	60 °F	0	0	72 °F	72 °F	0	0	72 °F	72 °F	0
Totals	1,170			4	1,133			47	908			10

**Newton - Education Center
EMS Improvements**

Heating Energy Savings

Newton Education Center - EMS Improvements Annual Heating Energy Savings Summary				
Calculated Annual Space Heating Energy - MMBtu				
	Existing	Proposed	Saved	
Total Space Heating End-Use MMBtu	4,400	4,339	61	
Space Heating End-Use Btu/SF/Year	78,566	77,484	866	
Calculated Annual Space Heating Energy - Therms				
Estimated Existing Average Boiler/Distribution Efficiency			80%	
	Therms Existing	Therms Proposed	Therms Saved	
Total Space Heating End-Use	54,996	54,239	758	

Breakdown Of Average Annual Fuel Usage - Per Billing History Data				
	Billed Fuel Usage (Average) And Estimated Breakdown	Billed MMBTU	Fuel Btu/Sf/Yr	
	Annual Total	4,677	66,814	
	Space Heating Only	4,638	66,251	
	Domestic Hot Water Only	39	563	

**Newton - City Hall
EMS Improvements**

Heating Energy Savings

I. Heating System Capacity Data And Operating Parameters

Building: Newton - City Hall												
System: All Steam Space Heating Systems					<u>Daily/Weekly Occupancy Schedule:</u>							
Area Served: All												
Annual Time Period: All Year												
Scheduling Control In Place (Y/N): Y												
					Building Occupancy Schedule By Weekday			Percent Occupied Times By Daily Time Period				
								12 AM To 8 AM	8 AM To 4 PM	4 PM To 12 AM		
									Start	End		
<u>Heating System "Lockout" Outside Air Temperature And Space Temperatures</u>						Monday	7:30 AM	9:30 PM	6%	100%	69%	
<u>Estimated Under Existing Conditions With Limited Controls And Under Proposed</u>						Tuesday	7:30 AM	9:30 PM	6%	100%	69%	
<u>Conditions With Energy Management System Control:</u>						Wednesday	8:00 AM	9:00 PM	0%	100%	63%	
						Thursday	6:00 AM	7:30 PM	25%	100%	44%	
						Friday	5:00 AM	11:59 PM	38%	100%	100%	
						Saturday	12:00 AM	7:00 AM	88%	0%	0%	
						Sunday	5:00 AM	8:00 AM	38%	0%	0%	
								Annual Total	29%	71%	49%	
								Annual Occupied Hours Per Period	834	2,083	1,433	
								Total Annual Occupied Hours	4,350	50%		
<u>Annual Months Of Operation At Above Weekly Schedule:</u>												
							Space Heating Enabled					
					Month							
					January		100%					
					February		100%					
					March		75%					
<u>Existing Space Heating Systems - Design Capacity Data</u>					April		50%					
					May		25%					
					June		0%					
					July		0%					
					August		0%					
					September		0%					
					October		25%					
					November		75%					
					December		100%					

**Newton - City Hall
EMS Improvements**

Heating Energy Savings

II. Estimated Annual Space Heating Energy Savings With EMS Control Of Space Heating Systems

Building: Newton - City Hall
HVAC System: All Steam Space Heating Systems
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	Heating Energy Savings 12 AM To 8 AM			Daily Time Period	Heating Energy Savings 8 AM To 4 PM			Daily Time Period	Heating Energy Savings 4 PM To 12 AM		
	12 AM To 8 AM	Existing Average Space Temp.	Proposed Average Space Temp. With EMS	Space Heating Annual MMBtu Saved	8 AM To 4 PM	Existing Average Space Temp.	Proposed Average Space Temp. With EMS	Space Heating Annual MMBtu Saved	4 PM To 12 AM	Existing Average Space Temp.	Proposed Average Space Temp. With EMS	Space Heating Annual MMBtu Saved
	Heating Hours				Heating Hours				Heating Hours			
95 / 99	0	65 °F	65 °F	0	0	74 °F	74 °F	0	0	75 °F	75 °F	0
90 / 94	0	65 °F	65 °F	0	0	74 °F	74 °F	0	0	75 °F	75 °F	0
85 / 89	0	65 °F	65 °F	0	1	74 °F	74 °F	0	0	75 °F	75 °F	0
80 / 84	0	65 °F	65 °F	0	3	74 °F	74 °F	0	0	75 °F	75 °F	0
75 / 79	0	65 °F	65 °F	0	8	74 °F	74 °F	0	1	75 °F	75 °F	0
70 / 74	0	65 °F	65 °F	0	13	74 °F	74 °F	0	3	75 °F	75 °F	0
65 / 69	1	65 °F	65 °F	0	23	74 °F	74 °F	0	8	75 °F	75 °F	0
60 / 64	4	65 °F	65 °F	0	37	74 °F	74 °F	0	14	75 °F	75 °F	0
55 / 59	9	65 °F	65 °F	2	52	74 °F	74 °F	30	24	75 °F	75 °F	14
50 / 54	15	65 °F	65 °F	0	68	74 °F	74 °F	0	35	75 °F	75 °F	0
45 / 49	22	62 °F	62 °F	0	83	73 °F	73 °F	0	47	74 °F	74 °F	0
40 / 44	32	62 °F	62 °F	0	126	73 °F	73 °F	0	70	74 °F	74 °F	0
35 / 39	49	62 °F	62 °F	0	143	73 °F	73 °F	0	101	74 °F	74 °F	0
30 / 34	310	62 °F	62 °F	0	214	73 °F	73 °F	0	276	74 °F	74 °F	0
25 / 29	219	60 °F	60 °F	0	148	72 °F	72 °F	0	185	72 °F	72 °F	0
20 / 24	161	60 °F	60 °F	0	94	72 °F	72 °F	0	129	72 °F	72 °F	0
15 / 19	108	60 °F	60 °F	0	63	72 °F	72 °F	0	86	72 °F	72 °F	0
10 / 14	83	60 °F	60 °F	0	32	72 °F	72 °F	0	54	72 °F	72 °F	0
5 / 9	64	60 °F	60 °F	0	16	72 °F	72 °F	0	31	72 °F	72 °F	0
0 / 4	36	60 °F	60 °F	0	6	72 °F	72 °F	0	9	72 °F	72 °F	0
-5 / -1	13	60 °F	60 °F	0	2	72 °F	72 °F	0	4	72 °F	72 °F	0
-10 / -6	7	60 °F	60 °F	0	0	72 °F	72 °F	0	1	72 °F	72 °F	0
-15 / -11	3	60 °F	60 °F	0	0	72 °F	72 °F	0	0	72 °F	72 °F	0
-20 / -16	1	60 °F	60 °F	0	0	72 °F	72 °F	0	0	72 °F	72 °F	0
Totals	1,137			2	1,133			30	1,079			14

**Newton - City Hall
EMS Improvements**

Heating Energy Savings

Newton City Hall - EMS Improvemnts Annual Heating Energy Savings Summary				
Calculated Annual Space Heating Energy - MMBtu				
	Existing	Proposed	Saved	
Total Space Heating End-Use MMBtu	4,257	4,211	46	
Space Heating End-Use Btu/SF/Year	65,701	64,987	572	
Calculated Annual Space Heating Energy - Therms				
Estimated Existing Average Boiler/Distribution Efficiency			80%	
	Therms Existing	Therms Proposed	Therms Saved	
Total Space Heating End-Use	53,218	52,639	579	

Breakdown Of Average Annual Fuel Usage - Per Billing History Data				
	Billed Fuel Usage (Average) And Estimated Breakdown	Billed MMBTU	Fuel Btu/Sf/Yr	
	Annual Total	5,386	66,494	
	Space Heating Only	4,948	61,086	
	Domestic Hot Water Only	438	5,407	

NORESCO

Energy Savings Analysis - EMS Improvements

Building: Police HQ		Existing	Proposed	
Unit #: FCUs	Scheduling And Setback Control	N	Y	Y = Included, N = Not Included
Area Served: Building	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: CV Terminal Heating/Cooling	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	12.4	12.4	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	H	H	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	11,380	16,805	12,083	275	23,463		Fans 3.9 kW
8 AM - 4 PM	Occupied	11,372	31,841	26,116	153	37,488		Cooling 32.5 kW
4 PM - 12 AM	Occupied	11,388	23,135	17,546	232	28,934		Total 36.4 kW
All	Unoccupied	0	0	0	0	0		
Totals		34,141	71,781	55,745	661	89,886	19%	

93%

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	11,380	13,164	9,475	275	20,855	Fans	3.9 kW
8 AM - 4 PM	Occupied	11,372	25,400	20,798	153	32,171	Cooling	25.3 kW
4 PM - 12 AM	Occupied	11,388	18,480	14,031	232	25,418	Total	29.2 kW
All	Unoccupied	0	0	0	0	0		
Totals		34,140	57,044	44,304	659	78,444		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	0	3,641	2,608	1	2,608	Fans	0.0 kW
8 AM - 4 PM	Occupied	0	6,441	5,318	0	5,318	Cooling	7.1 kW
4 PM - 12 AM	Occupied	0	4,656	3,515	1	3,516	Total	7.1 kW
All	Unoccupied	0	0	0	0	0		
Totals		0	14,738	11,441	1	11,442	13%	

0%

21%

21%

0%

13%

NORESCO
Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Police HQ
HVAC System: FCUs
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.17	0
90 / 94	0	0%	97%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.08	0
85 / 89	0	0%	91%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.00	0
80 / 84	3	0%	86%	100%	3.9	0.0	3.9	12	0	0	29.2	88	0.91	80
75 / 79	27	0%	80%	100%	3.9	0.0	3.9	105	0	0	25.8	697	0.83	576
70 / 74	119	0%	74%	100%	3.9	0.0	3.9	464	0	0	22.6	2,691	0.74	1,996
65 / 69	221	0%	69%	100%	3.9	0.0	3.9	862	0	0	19.4	4,252	0.71	3,009
60 / 64	262	0%	63%	100%	3.9	0.0	3.9	1,022	0	0	16.2	4,006	0.71	2,835
55 / 59	271	0%	58%	100%	3.9	0.0	3.9	1,057	0	0	13.0	3,131	0.71	2,216
50 / 54	254	0%	52%	100%	3.9	0.0	3.9	991	0	0	9.8	1,940	0.71	1,372
45 / 49	242	17%	50%	100%	3.9	0.0	3.9	944	66	4	0.0	0	0.71	0
40 / 44	240	25%	50%	100%	3.9	0.0	3.9	936	102	9	0.0	0	0.71	0
35 / 39	274	33%	50%	100%	3.9	0.0	3.9	1,069	138	21	0.0	0	0.71	0
30 / 34	310	41%	50%	100%	3.9	0.0	3.9	1,209	176	41	0.0	0	0.71	0
25 / 29	219	49%	50%	100%	3.9	0.0	3.9	854	214	40	0.0	0	0.71	0
20 / 24	161	57%	50%	100%	3.9	0.0	3.9	628	252	39	0.0	0	0.71	0
15 / 19	108	65%	50%	100%	3.9	0.0	3.9	421	290	33	0.0	0	0.71	0
10 / 14	83	74%	50%	100%	3.9	0.0	3.9	324	328	31	0.0	0	0.71	0
5 / 9	64	82%	50%	100%	3.9	0.0	3.9	250	366	27	0.0	0	0.71	0
0 / 4	36	90%	50%	100%	3.9	0.0	3.9	140	405	17	0.0	0	0.71	0
-5 / -1	13	98%	50%	100%	3.9	0.0	3.9	51	443	7	0.0	0	0.71	0
-10 / -6	7	100%	50%	100%	3.9	0.0	3.9	27	468	4	0.0	0	0.71	0
-15 / -11	3	100%	50%	100%	3.9	0.0	3.9	12	488	2	0.0	0	0.71	0
-20 / -16	1	100%	50%	100%	3.9	0.0	3.9	4	508	1	0.0	0	0.71	0
2,918								11,380		275		16,805		12,083

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Estimated Annual Energy Usage - Proposed HVAC System And Controls

Building: Police HQ		Proposed	
Unit #: FCUs	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Building	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: CV Terminal Heating/Cooling	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	12.4	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	H	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	11,380	13,164	9,475	275	20,855	Fans	3.9 kW
8 AM - 4 PM	Occupied	11,372	25,400	20,798	153	32,171	Cooling	25.3 kW
4 PM - 12 AM	Occupied	11,388	18,480	14,031	232	25,418	Total	29.2 kW
All	Unoccupied	0	0	0	0	0		
Totals		34,140	57,044	44,304	659	78,444		

NORESCO

Estimated Annual Energy Usage - Proposed HVAC System And Controls

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Police HQ
HVAC System: FCUs
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.17	0
90 / 94	0	0%	97%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.08	0
85 / 89	0	0%	91%	100%	0.0	0.0	0.0	0	0	0	0.0	0	1.00	0
80 / 84	3	0%	86%	100%	3.9	0.0	3.9	12	0	0	24.7	74	0.91	68
75 / 79	27	0%	80%	100%	3.9	0.0	3.9	105	0	0	21.7	586	0.83	484
70 / 74	119	0%	74%	100%	3.9	0.0	3.9	464	0	0	18.7	2,228	0.74	1,652
65 / 69	221	0%	69%	100%	3.9	0.0	3.9	862	0	0	15.7	3,445	0.71	2,438
60 / 64	262	0%	63%	100%	3.9	0.0	3.9	1,022	0	0	12.7	3,148	0.71	2,227
55 / 59	271	0%	58%	100%	3.9	0.0	3.9	1,057	0	0	9.8	2,346	0.71	1,660
50 / 54	254	0%	52%	100%	3.9	0.0	3.9	991	0	0	6.8	1,337	0.71	946
45 / 49	242	17%	50%	100%	3.9	0.0	3.9	944	62	3	0.0	0	0.71	0
40 / 44	240	25%	50%	100%	3.9	0.0	3.9	936	100	9	0.0	0	0.71	0
35 / 39	274	33%	50%	100%	3.9	0.0	3.9	1,069	138	21	0.0	0	0.71	0
30 / 34	310	41%	50%	100%	3.9	0.0	3.9	1,209	176	41	0.0	0	0.71	0
25 / 29	219	49%	50%	100%	3.9	0.0	3.9	854	214	40	0.0	0	0.71	0
20 / 24	161	57%	50%	100%	3.9	0.0	3.9	628	252	39	0.0	0	0.71	0
15 / 19	108	65%	50%	100%	3.9	0.0	3.9	421	290	33	0.0	0	0.71	0
10 / 14	83	74%	50%	100%	3.9	0.0	3.9	324	328	31	0.0	0	0.71	0
5 / 9	64	82%	50%	100%	3.9	0.0	3.9	250	366	27	0.0	0	0.71	0
0 / 4	36	90%	50%	100%	3.9	0.0	3.9	140	404	17	0.0	0	0.71	0
-5 / -1	13	98%	50%	100%	3.9	0.0	3.9	51	442	7	0.0	0	0.71	0
-10 / -6	7	100%	50%	100%	3.9	0.0	3.9	27	468	4	0.0	0	0.71	0
-15 / -11	3	100%	50%	100%	3.9	0.0	3.9	12	487	2	0.0	0	0.71	0
-20 / -16	1	100%	50%	100%	3.9	0.0	3.9	4	507	1	0.0	0	0.71	0
2,918								11,380		275		13,164		9,475

NORESCO

Energy Savings Analysis - EMS Improvements

Building: Police Annex		Existing	Proposed	
Unit #: AHUs/FTR	Scheduling And Setback Control	N	Y	<i>Y = Included, N = Not Included</i>
Area Served: Building	Supply And Return Fan VFD's	N	N	<i>Y = Included, N = Not Included</i>
System Type: CV Terminal Heating/Cooling	Demand-Controlled Ventilation	N	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	9.6	9.6	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	H	H	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	2,689	4,218	2,359	98	5,048	Fans	0.9 kW
8 AM - 4 PM	Occupied	2,687	8,246	5,277	57	7,964	Cooling	6.7 kW
4 PM - 12 AM	Occupied	2,691	5,907	3,491	85	6,181	Total	7.7 kW
All	Unoccupied	0	0	0	0	0		
Totals		8,067	18,372	11,126	240	19,193		
							103%	19%

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	1,008	1,657	926	41	1,934	Fans	0.9 kW
8 AM - 4 PM	Occupied	2,687	8,407	5,365	60	8,052	Cooling	6.7 kW
4 PM - 12 AM	Occupied	1,345	3,044	1,795	46	3,140	Total	7.7 kW
All	Unoccupied	0	0	0	0	0		
Totals		5,041	13,107	8,086	147	13,127		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	1,681	2,561	1,433	58	3,114	Fans	0.0 kW
8 AM - 4 PM	Occupied	0	-160	-88	-3	-88	Cooling	0.0 kW
4 PM - 12 AM	Occupied	1,345	2,864	1,696	39	3,041	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		3,026	5,265	3,040	93	6,066		
		38%	29%	27%	39%	32%		

NORESCO
Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Police Annex
HVAC System: AHUs/FTR
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton- Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.91	0
90 / 94	0	0%	97%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.84	0
85 / 89	0	0%	91%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.77	0
80 / 84	3	0%	86%	100%	0.9	0.0	0.9	3	0	0	7.7	23	0.71	16
75 / 79	27	0%	80%	100%	0.9	0.0	0.9	25	0	0	6.8	183	0.64	117
70 / 74	119	0%	74%	100%	0.9	0.0	0.9	110	0	0	5.9	699	0.58	403
65 / 69	221	0%	69%	100%	0.9	0.0	0.9	204	0	0	5.0	1,090	0.55	599
60 / 64	262	0%	63%	100%	0.9	0.0	0.9	241	0	0	4.1	1,007	0.55	554
55 / 59	271	0%	58%	100%	0.9	0.0	0.9	250	0	0	3.2	765	0.55	421
50 / 54	254	0%	52%	100%	0.9	0.0	0.9	234	0	0	2.3	451	0.55	248
45 / 49	242	17%	50%	100%	0.9	0.0	0.9	223	37	2	0.0	0	0.55	0
40 / 44	240	25%	50%	100%	0.9	0.0	0.9	221	48	4	0.0	0	0.55	0
35 / 39	274	33%	50%	100%	0.9	0.0	0.9	252	59	9	0.0	0	0.55	0
30 / 34	310	41%	50%	100%	0.9	0.0	0.9	286	71	15	0.0	0	0.55	0
25 / 29	219	49%	50%	100%	0.9	0.0	0.9	202	82	14	0.0	0	0.55	0
20 / 24	161	57%	50%	100%	0.9	0.0	0.9	148	93	14	0.0	0	0.55	0
15 / 19	108	65%	50%	100%	0.9	0.0	0.9	100	105	11	0.0	0	0.55	0
10 / 14	83	73%	50%	100%	0.9	0.0	0.9	76	116	10	0.0	0	0.55	0
5 / 9	64	81%	50%	100%	0.9	0.0	0.9	59	127	9	0.0	0	0.55	0
0 / 4	36	89%	50%	100%	0.9	0.0	0.9	33	139	5	0.0	0	0.55	0
-5 / -1	13	97%	50%	100%	0.9	0.0	0.9	12	150	2	0.0	0	0.55	0
-10 / -6	7	100%	50%	100%	0.9	0.0	0.9	6	158	1	0.0	0	0.55	0
-15 / -11	3	100%	50%	100%	0.9	0.0	0.9	3	164	1	0.0	0	0.55	0
-20 / -16	1	100%	50%	100%	0.9	0.0	0.9	1	170	0	0.0	0	0.55	0
2,918								2,689		98		4,218		2,359

NORESCO

Estimated Annual Energy Usage - Proposed HVAC System And Controls

Building: Police Annex		Proposed	
Unit #: AHUs/FTR	Scheduling And Setback Control	Y	Y = Included, N = Not Included
Area Served: Building	Supply And Return Fan VFD's	N	Y = Included, N = Not Included
System Type: CV Terminal Heating/Cooling	Demand-Controlled Ventilation	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	9.6	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	H	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	1,008	1,657	926	41	1,934	Fans	0.9 kW
8 AM - 4 PM	Occupied	2,687	8,407	5,365	60	8,052	Cooling	6.7 kW
4 PM - 12 AM	Occupied	1,345	3,044	1,795	46	3,140		
All	Unoccupied	0	0	0	0	0		
	Totals	5,041	13,107	8,086	147	13,127	Total	7.7 kW

NORESCO

Estimated Annual Energy Usage - Proposed HVAC System And Controls

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Police Annex
HVAC System: AHUs/FTR
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.91	0
90 / 94	0	0%	97%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.84	0
85 / 89	0	0%	91%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.77	0
80 / 84	1	0%	86%	100%	0.9	0.0	0.9	1	0	0	7.7	9	0.71	6
75 / 79	10	0%	80%	100%	0.9	0.0	0.9	9	0	0	6.8	69	0.64	44
70 / 74	45	0%	74%	100%	0.9	0.0	0.9	41	0	0	5.9	265	0.58	153
65 / 69	83	0%	69%	100%	0.9	0.0	0.9	76	0	0	5.1	419	0.55	230
60 / 64	98	0%	63%	100%	0.9	0.0	0.9	91	0	0	4.3	395	0.55	217
55 / 59	102	0%	58%	100%	0.9	0.0	0.9	94	0	0	3.4	309	0.55	170
50 / 54	95	0%	52%	100%	0.9	0.0	0.9	88	0	0	2.6	192	0.55	105
45 / 49	91	16%	50%	100%	0.9	0.0	0.9	84	36	1	0.0	0	0.55	0
40 / 44	90	24%	50%	100%	0.9	0.0	0.9	83	49	2	0.0	0	0.55	0
35 / 39	103	33%	50%	100%	0.9	0.0	0.9	95	62	3	0.0	0	0.55	0
30 / 34	116	41%	50%	100%	0.9	0.0	0.9	107	76	6	0.0	0	0.55	0
25 / 29	82	50%	50%	100%	0.9	0.0	0.9	76	90	6	0.0	0	0.55	0
20 / 24	60	59%	50%	100%	0.9	0.0	0.9	56	104	6	0.0	0	0.55	0
15 / 19	41	67%	50%	100%	0.9	0.0	0.9	37	118	5	0.0	0	0.55	0
10 / 14	31	76%	50%	100%	0.9	0.0	0.9	29	132	4	0.0	0	0.55	0
5 / 9	24	84%	50%	100%	0.9	0.0	0.9	22	146	4	0.0	0	0.55	0
0 / 4	14	93%	50%	100%	0.9	0.0	0.9	12	161	2	0.0	0	0.55	0
-5 / -1	5	100%	50%	100%	0.9	0.0	0.9	4	173	1	0.0	0	0.55	0
-10 / -6	3	100%	50%	100%	0.9	0.0	0.9	2	179	1	0.0	0	0.55	0
-15 / -11	1	100%	50%	100%	0.9	0.0	0.9	1	185	0	0.0	0	0.55	0
-20 / -16	0	100%	50%	100%	0.9	0.0	0.9	0	191	0	0.0	0	0.55	0
1,094								1,008		41		1,657		926

NORESCO

Energy Savings Analysis - EMS Improvements

Building: Police Garage		Existing	Proposed	
Equipment #: #1 - 5	Scheduling And Setback Control	N	Y	Y = Included, N = Not Included
Area Served: Building	Supply And Return Fan VFD's	N	N	Y = Included, N = Not Included
System Type: Gas Unit Heaters	Demand-Controlled Ventilation	N	N	Y = Included, N = Not Included
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	D = Dry Bulb, E = Enthalpy, N = None
	Cooling EER/SEER	0.0	0.0	EER = 12/(kW Per Ton)
	Fan Motor Efficiency Levels	H	H	S = Standard, H = High, P = Premium

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	960	0	0	272	960	Fans	0.3 kW
8 AM - 4 PM	Occupied	960	0	0	204	960	Cooling	0.0 kW
4 PM - 12 AM	Occupied	961	0	0	241	961	Total	0.3 kW
All	Unoccupied	0	0	0	0	0		
Totals		2,881	0	0	717	2,881		

89% 6%

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	384	0	0	109	384	Fans	0.3 kW
8 AM - 4 PM	Occupied	960	0	0	204	960	Cooling	0.0 kW
4 PM - 12 AM	Occupied	985	0	0	247	985	Total	0.3 kW
All	Unoccupied	0	0	0	0	0		
Totals		2,329	0	0	560	2,329		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	576	0	0	163	576	Fans	0.0 kW
8 AM - 4 PM	Occupied	0	0	0	0	0	Cooling	0.0 kW
4 PM - 12 AM	Occupied	-24	0	0	-6	-24	Total	0.0 kW
All	Unoccupied	0	0	0	0	0		
Totals		552	0	0	157	552		

19%

22%

19%

NORESCO
Energy Savings Analysis - EMS Improvements

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Police Garage
HVAC System: #1 - 5
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	97%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	91%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	3	0%	86%	100%	0.3	0.0	0.3	1	0	0	0.0	0	0.00	0
75 / 79	27	0%	80%	100%	0.3	0.0	0.3	9	0	0	0.0	0	0.00	0
70 / 74	119	0%	74%	100%	0.3	0.0	0.3	39	0	0	0.0	0	0.00	0
65 / 69	221	0%	69%	100%	0.3	0.0	0.3	73	0	0	0.0	0	0.00	0
60 / 64	262	0%	63%	100%	0.3	0.0	0.3	86	0	0	0.0	0	0.00	0
55 / 59	271	0%	58%	100%	0.3	0.0	0.3	89	21	0	0.0	0	0.00	0
50 / 54	254	14%	52%	100%	0.3	0.0	0.3	84	91	3	0.0	0	0.00	0
45 / 49	242	22%	50%	100%	0.3	0.0	0.3	80	117	6	0.0	0	0.00	0
40 / 44	240	30%	50%	100%	0.3	0.0	0.3	79	143	12	0.0	0	0.00	0
35 / 39	274	38%	50%	100%	0.3	0.0	0.3	90	169	25	0.0	0	0.00	0
30 / 34	310	46%	50%	100%	0.3	0.0	0.3	102	197	43	0.0	0	0.00	0
25 / 29	219	54%	50%	100%	0.3	0.0	0.3	72	225	39	0.0	0	0.00	0
20 / 24	161	62%	50%	100%	0.3	0.0	0.3	53	252	37	0.0	0	0.00	0
15 / 19	108	70%	50%	100%	0.3	0.0	0.3	36	280	30	0.0	0	0.00	0
10 / 14	83	78%	50%	100%	0.3	0.0	0.3	27	308	27	0.0	0	0.00	0
5 / 9	64	86%	50%	100%	0.3	0.0	0.3	21	335	23	0.0	0	0.00	0
0 / 4	36	94%	50%	100%	0.3	0.0	0.3	12	363	14	0.0	0	0.00	0
-5 / -1	13	100%	50%	100%	0.3	0.0	0.3	4	389	6	0.0	0	0.00	0
-10 / -6	7	100%	50%	100%	0.3	0.0	0.3	2	410	3	0.0	0	0.00	0
-15 / -11	3	100%	50%	100%	0.3	0.0	0.3	1	430	1	0.0	0	0.00	0
-20 / -16	1	100%	50%	100%	0.3	0.0	0.3	0	450	1	0.0	0	0.00	0
	2,918							960		272		0		0

NORESCO

Estimated Annual Energy Usage - Proposed HVAC System And Controls

Building: Police Garage		Proposed	
Unit #: #1 - 5	Scheduling And Setback Control	Y	<i>Y = Included, N = Not Included</i>
Area Served: Building	Supply And Return Fan VFD's	N	<i>Y = Included, N = Not Included</i>
System Type: Gas Unit Heaters	Demand-Controlled Ventilation	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	0.0	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	H	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh	Fans	0.3 kW
12 M - 8 AM	Occupied	384	0	0	109	384	Cooling	0.0 kW
8 AM - 4 PM	Occupied	960	0	0	204	960		
4 PM - 12 AM	Occupied	985	0	0	247	985		
All	Unoccupied	0	0	0	0	0		
	Totals	2,329	0	0	560	2,329	Total	0.3 kW

NORESCO

Estimated Annual Energy Usage - Proposed HVAC System And Controls

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Police Garage
HVAC System: #1 - 5
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	97%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	91%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	1	0%	86%	100%	0.3	0.0	0.3	0	0	0	0.0	0	0.00	0
75 / 79	11	0%	80%	100%	0.3	0.0	0.3	4	0	0	0.0	0	0.00	0
70 / 74	48	0%	74%	100%	0.3	0.0	0.3	16	0	0	0.0	0	0.00	0
65 / 69	88	0%	69%	100%	0.3	0.0	0.3	29	0	0	0.0	0	0.00	0
60 / 64	105	0%	63%	100%	0.3	0.0	0.3	34	0	0	0.0	0	0.00	0
55 / 59	108	0%	58%	100%	0.3	0.0	0.3	36	21	0	0.0	0	0.00	0
50 / 54	102	14%	52%	100%	0.3	0.0	0.3	33	91	1	0.0	0	0.00	0
45 / 49	97	22%	50%	100%	0.3	0.0	0.3	32	117	2	0.0	0	0.00	0
40 / 44	96	30%	50%	100%	0.3	0.0	0.3	32	143	5	0.0	0	0.00	0
35 / 39	110	38%	50%	100%	0.3	0.0	0.3	36	169	10	0.0	0	0.00	0
30 / 34	124	46%	50%	100%	0.3	0.0	0.3	41	197	17	0.0	0	0.00	0
25 / 29	88	54%	50%	100%	0.3	0.0	0.3	29	225	16	0.0	0	0.00	0
20 / 24	64	62%	50%	100%	0.3	0.0	0.3	21	252	15	0.0	0	0.00	0
15 / 19	43	70%	50%	100%	0.3	0.0	0.3	14	280	12	0.0	0	0.00	0
10 / 14	33	78%	50%	100%	0.3	0.0	0.3	11	308	11	0.0	0	0.00	0
5 / 9	26	86%	50%	100%	0.3	0.0	0.3	8	335	9	0.0	0	0.00	0
0 / 4	14	94%	50%	100%	0.3	0.0	0.3	5	363	6	0.0	0	0.00	0
-5 / -1	5	100%	50%	100%	0.3	0.0	0.3	2	389	2	0.0	0	0.00	0
-10 / -6	3	100%	50%	100%	0.3	0.0	0.3	1	410	1	0.0	0	0.00	0
-15 / -11	1	100%	50%	100%	0.3	0.0	0.3	0	430	1	0.0	0	0.00	0
-20 / -16	0	100%	50%	100%	0.3	0.0	0.3	0	450	0	0.0	0	0.00	0
1,167								384		109		0		0

COMPUTER POWER MANAGEMENT

Overview

Whether for learning purposes at Brown Middle School or for administration purposes at City Hall, computers are an integral component of the City of Newton's daily operations. While these computers are utilized for much of the day, studies show that workstations in administrative offices and in classroom environments are unused for large portions of the day and night. During unused periods of time, computers consume needless energy by running at full operational power levels. It is estimated that over a third of a computer's daily power consumption is wasted during the periods of the day when users are away from their desk during breaks, meetings, or the overnight hours when computers are left on. Each computer can consume up to 15 watts of electricity when left in standby mode. This power consumption can be greatly reduced by installing networked computer power management software.



NORESCO will provide Computer Power Management software that will reduce networked desktop computer, monitor and laptop energy consumption at times during the day when users are not actively using their workstations, resulting in significant energy savings.

Detailed Description

Existing System

During the audit, the City of Newton provided information on the number of personal computers that existed on their IT infrastructure. The table below presents a breakout of the quantities of equipment by type and municipal and school categories.

City of Newton	PC	Mac	Total
	#	#	#
City Buildings	600	0	600
School Buildings	1,047	4,468	5,515
TOTAL	1,647	4,468	6,115

As is typical of municipal and public school applications, the computers are used on an intermittent basis and are only used during the hours that each building is occupied. However, there is no uniform method in place to ensure automatic shutdown of all computers when not in use or at the end of each work day.

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Recommended Improvements

NORESCO will deliver a uniform software solution to curb unnecessary computer energy consumption. The software will be server-based and under the control of the City's information systems groups. The software is designed to look at CPU and Disk Utilization thresholds that IT administrators can set so that workstations will not shut down if background jobs such as VPN, remote access, and remote backup are running. The software also allows IT administrators to specify critical programs that are exempt from power down if they are running. CPU and Disk Utilization combines with this feature to ensure that systems are not powered down when users do not want them to. The intent is to ensure all computers are powered down during any extended absence from the workstations and during normal unoccupied hours of the buildings.

Scope of Work

The scope of work will include:

- Purchase and installation of software for networked computers for the City of Newton as described in the table above. The software will be delivered via electronic download.
- Training in the use of the software for the Information Systems staff.
- One year of the annual maintenance package.
- The City of Newton information systems departments are responsible for installing the software. NORESKO will support the City throughout the implementation process.

Interface with Existing Systems and Operations

Impact on Facility Operations and Performance

The facility will benefit from reduced energy consumption. Unnecessary run hours of computers will be curtailed and, therefore, energy consumption will be reduced with no interruption of normal system activities.

Customer Training

NORESCO will provide O&M manuals as well as field training for the installed software.

Maintenance

The Faronics PowerSave software has annual license renewal and maintenance fees. The City is responsible for maintaining the software and licenses, including upgrades and patches.

Equipment Information

Manufacturer and Type

NORESCO will install networked computer management software as developed by Faronics (or approved equal).

- **Faronics Corporation**, 2411 Old Crow Canyon Road, Suite 170, San Ramon, CA 94583 Ph: (800) 943-6422, Fax: (800) 943-6488

***Computer Power Management
I. Energy Savings Calculations***

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City of Newton
Computer Power Management

Totals - City Wide

	Existing	Proposed	Savings
Quantity of Machines	6,115	6,115	
Total kWh / Year	1,448,622	1,110,610	338,012
Per Machine kWh / yr	236.9	181.6	55.3

CITY BUILDINGS

	Existing	Proposed	Savings
Per Machine			
Average Watts	106	106	
Operating Hours	3,000	2,300	700
kWh / Year / Machine	318	244	74
City Wide Total - City Buildings			
Quantity	600	600	
Total kWh / Year	190,800	146,280	44,520

PUBLIC SCHOOLS Macs

	Existing	Proposed	Savings
Per Machine			
Average Watts	69	69	
Operating Hours	3,000	2,300	700
kWh / Year / Machine	207	159	48
City Wide Total - Public Schools - Macs			
Quantity	4,468	4,468	
Total kWh / Year	924,876	709,072	215,804

PUBLIC SCHOOLS PCs

	Existing	Proposed	Savings
Per Machine			
Average Watts	106	106	
Operating Hours	3,000	2,300	700
kWh / Year / Machine	318	244	74
City Wide Total - Public Schools - PCs			
Quantity	1,047	1,047	
Total kWh / Year	332,946	255,259	77,687

VARIABLE FREQUENCY DRIVES & PREMIUM EFFICIENCY MOTORS

Overview

NORESCO identified some systems in Newton's buildings that will benefit from variable frequency drive (VFD) installations and premium efficiency (PE) motor upgrades. These upgrades will reduce the energy consumption of the existing systems while improving overall performance. Upon completion, the VFDs, PE Motors, and direct digital controls (DDC) will allow for reduced energy consumption and tighter response to transient zone conditions, effectively providing the served spaces with increased comfort conditions. NORESKO will implement this measure in the following buildings:



- Bigelow Middle School
- Oak Hill Middle School
- Police Headquarters

Detailed Description

Existing System

Several of the City of Newton facilities provide heating hot water and supply air to the building air handling units (AHUs), unit ventilators and other unitary equipment at a constant flowrate. Through the use of variable frequency drives on pump and fan motors the City of Newton will be able to recognize energy savings derived from the reduction of power required to pump the water through the buildings' heating coils.

$$\text{Gallons per Minute}_{\text{initial}} / \text{Gallons per Minute}_{\text{final}} = \text{RPM}_{\text{initial}} / \text{RPM}_{\text{final}}$$

$$\text{Power}_{\text{initial}} / \text{Power}_{\text{final}} = (\text{RPM}_{\text{initial}} / \text{RPM}_{\text{final}})^3$$

The same relational laws hold true on the air side, as well.

$$\text{Cubic Feet per Minute}_{\text{initial}} / \text{Cubic Feet per Minute}_{\text{final}} = \text{RPM}_{\text{initial}} / \text{RPM}_{\text{final}}$$

$$\text{Power}_{\text{initial}} / \text{Power}_{\text{final}} = (\text{RPM}_{\text{initial}} / \text{RPM}_{\text{final}})^3$$

A constant volume system can contribute to excessive energy use by over pumping or over ventilating at times when the heating or cooling load is low. At these times, a reduction in pump or fan speed can not only save energy, but also increase occupant comfort by providing tighter space temperature control.

Recommended Improvements

The following system was identified for conversion to variable flow:

- Bigelow Middle School: Hot Water Pumps 1 & 2 (Classroom Wing Zone 1)

Hot water pumps 1 & 2 (lead/lag) at Bigelow Middle School will have variable frequency drive equipment installed. The VFD will be integrated into the existing hot water distribution system and programmed through the new DDC energy management system to automatically respond to the fluctuating need for heating hot water throughout the zone.

Where two pumps exist to serve one hot water supply or return leg, i.e. a “lead/lag” situation, one VFD with a manual switchover will be installed to service both pumps. The variable frequency drives will be microprocessor-based, Pulse Width Modulating (PWM) units, having keypad control with alpha-numeric display, H-O-A switch with speed potentiometer, manual bypass, safety features and programmable inputs and outputs. The VFD will be controlled by sensors and application software interfaced with the new energy management system (EMS).

Constant volume air handling systems are relatively inefficient in terms of fan energy usage. The rate of heating or cooling supplied to a space can be varied by providing a constant quantity of air and changing its temperature or by delivering a constant discharge air temperature and varying the volume of air supplied. In either case, the heating or cooling energy provided will be identical.

Varying the supply air volume at constant air temperature will deliver significant fan energy savings if an efficient means of fan capacity control is used. A VFD provides the most efficient and cost-effective means of automatically changing supply air volumes, and provide significant reductions in energy usage as compared to the use of either fixed-speed fans or fans equipped with inlet guide vanes.

The following systems were identified for conversion to variable air volume control:

- Oak Hill Middle School: AHU-8
- Police Headquarters: RTU-1

VFDs will be installed on AHU-8’s Supply and Return Air Fans at Oak Hill Middle School and on the supply fan of RTU-1 at the Newton Police Headquarters. Due to ventilation air requirements and the need to maintain space air movement, the most efficient temperature control scheme for Oak Hill is to sequence supply air temperature reset with fan volume control via the VFD and energy management system controls. In the case of the Police HQ RTU, which has an inoperable inlet guide vane (IGV) system, the IGV will be locked open and the VFD will modulate speed according to static air pressure sensing. This control, and control of the downstream variable air volume boxes that will affect system static air pressure, are included under the Energy Management System Improvements ECM.

Also included in this measure will be the replacement of the following motors with inverter-rated, premium efficiency type:

Building/ Equipment	Motor Description					Existing Efficiency	Proposed Efficiency
	HP	Encl	Voltage	RPM			
Oak Hill MS AHU-8 SAF	7.5 HP	ODP	230/460	1750		82.9%	91.7%
Oak Hill MS AHU-8 RAF	3.0 HP	ODP	230/460	1750		82.9%	89.5%
Police Headquarters RTU-1	5 HP	ODP	208	1725		85.5%*	90.2%
Bigelow MS HWP-1	7.5 HP	ODP	208	1725		85.5%	91.7%
Bigelow MS HWP-2	7.5 HP	ODP	208	1725		85.5%	91.7%
Bigelow MS HWP-5	5 HP	ODP	208	1730		87.5%	90.2%
Bigelow MS HWP-6	5 HP	ODP	208	1730		87.5%	90.2%

*estimated

Although Hot Water Pumps 5 & 6 at Bigelow Middle School are not being converted to variable flow systems, the City of Newton will benefit from motor replacements. The installation of a new, National Electrical Manufacturers Association (NEMA) rated premium efficiency (PE) motor will reduce energy losses through improved design, better materials, and improved manufacturing techniques. With proper installation, energy-efficient motors run cooler and consequently have higher service factors, longer bearing and insulation life, and less vibration.

Scope of Work

The VFD installations will include the following:

- Provide one VFD for Hot Water Pumps HWP-1 & HWP-2 water pumps at Bigelow Middle School. Provide one VFD for AHU-8 Supply Air Fan and one VFD for Return Air Fan at Oak Hill Middle School. Provide one VFD for RTU-1 Supply Air Fan at the Police Headquarters. The installation of the VFDs shall include the ability to isolate the VFD via disconnect. Each VFD will include a main selector switch with OFF/VFD/BYPASS speed control selections mounted on the drive. A second VFD selector switch shall be mounted below the main switch, allowing only two modes, HAND and AUTO, when the drive is engaged. It should be impossible to energize the drive with the main switch and put the drive in the OFF position with the second switch. Existing motor starter shall be reused as a source of power to the VFD. The selected motor will be replaced and the new motor will be rated for inverter (VFD) duty. The drive will be mounted in a suitable location, near the motor starter panel.
- Provide direct digital controls for control and monitoring of the new VFDs, including VFD inputs and outputs, and application software as specified in the EMS scope of work and point lists.
- Provide checkout, start up, and commissioning for the entire project.

The Premium Efficiency motor upgrades will include the following:

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- Removal and disposal of the old standard efficiency motor, belts, and coupling inserts.
- Installation of the new motors on the existing HVAC equipment.
- Replacement of flexible rubber coupling inserts, unless otherwise specified.
- Installation of all adapters and hardware required to replace any existing U-frame motor with a T-frame motor.
- Inspection of belt sheaves and replacement of belts as required. The sheaves will be aligned to EASA standards with a straight edge. Belts will be tensioned to create a midpoint deflection.
- Provide checkout, start up and commissioning for the measure.

Interface with Existing Systems and Operations

Impact on Facility Operations and Performance

Work under this ECM will be done during normal working hours. The majority of the work will take place in the mechanical room spaces. NORESO will coordinate work with the City of Newton maintenance personnel.

Maintenance

NORESCO expects maintenance of the installed equipment to be comparable to current maintenance requirements.

Customer Training

NORESCO will provide O&M manuals as well as training for the installed equipment and controls systems.

Equipment Information

Manufacturer and Type

NORESCO will install premium efficiency manufactured by Baldor Electric Company, or approved equal.

- **Baldor Electric Company**, 5711 R.S. Boreham, Jr. St. Fort Smith, AR 72901 Phone: (479) 646-4711

The VFDs will be equal to the ACH 400 Series from ABB Drives Inc.

- **ABB Drives Inc., Standard Drives Division**, 16250 W. Glendale Dr. New Berlin, WI 53151 Phone: (414) 785-3200

***Variable Frequency Drives & Premium Efficiency Motors
I. Energy Savings Calculations***

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Energy Savings Analysis - Variable Frequency Drives For Hot Water Pumps 1 & 2

Building: Bigelow Middle School					<u>Daily/Weekly Occupancy Schedule:</u>					
System: HWPs - 1 & 2										
Area Served: All										
Unit Type:										
Annual Time Period: All										
Scheduling Control In Place (Y/N): Y										
								Percent Occupied		
								Times By Daily Time Period		
								12 AM To 8 AM	8 AM To 4 PM	4 PM To 12 AM
<u>Design Pump Motor Data:</u>					Weekday	Start	End			
					Monday:	6:00 AM	7:00 PM	25%	100%	38%
					Tuesday:	6:00 AM	7:00 PM	25%	100%	38%
					Wednesday:	6:00 AM	7:00 PM	25%	100%	38%
					Thursday:	6:00 AM	7:00 PM	25%	100%	38%
					Friday:	6:00 AM	7:00 PM	25%	100%	38%
					Saturday:	6:00 AM	7:00 PM	25%	100%	38%
					Sunday:	6:00 AM	7:00 PM	25%	100%	38%
					Operating Percentage - Annual Total			25%	100%	38%
					Annual Operating Hours Per Period			730	2,916	1,095
With VFD:					Total Annual Operating Hours			4,741	54%	
VFD Losses: 3%										
Pump Motor Full Load Input kw: 4.4					<u>Annual Months Of Operation At Above Weekly Schedule:</u>					
Pump Motor Minimum Input kw: 1.8										
					Month	System				
					January	100%				
					February	100%				
					March	100%				
					April	75%				
					May	0%				
					June	0%				
					July	0%				
					August	0%				
					September	0%				
					October	50%				
					November	100%				
					December	100%				
					Pump Outside Air "Lockout" Temperature: 55 °F					

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Energy Savings Analysis - Variable Frequency Drives For Hot Water Pumps 1 & 2

II. Estimated Annual Pump Energy Savings With VFD Speed Control

Building: Bigelow Middle School
HVAC System: HWP's - 1 & 2
Annual Time Period: All
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	OAT	Daily Time Period	Pump Energy Savings 12 AM To 8 AM			Daily Time Period	Pump Energy Savings 8 AM To 4 PM			Daily Time Period	Pump Energy Savings 4 PM To 12 AM		
		12 AM To 8 AM	% Of Peak Reheat Heating Load	HW Pump kW Saved	HW Pump Total kWh Saved	8 AM To 4 PM	% Of Peak Reheat Heating Load	HW Pump kW Saved	HW Pump Total kWh Saved	4 PM To 12 AM	% Of Peak Reheat Heating Load	HW Pump kW Saved	HW Pump Total kWh Saved
		System Hours				System Hours				System Hours			
95 / 99	97 °F	0	20%	0.0	0	0	10%	0.0	0	0	20%	0.0	0
90 / 94	92 °F	0	20%	0.0	0	0	10%	0.0	0	0	20%	0.0	0
85 / 89	87 °F	0	20%	0.0	0	1	10%	0.0	0	0	20%	0.0	0
80 / 84	82 °F	0	20%	0.0	0	2	10%	0.0	0	0	20%	0.0	0
75 / 79	77 °F	0	20%	0.0	0	10	10%	0.0	0	0	20%	0.0	0
70 / 74	72 °F	0	20%	0.0	0	17	10%	0.0	0	2	20%	0.0	0
65 / 69	67 °F	1	26%	0.0	0	34	15%	0.0	0	6	26%	0.0	0
60 / 64	62 °F	4	36%	0.0	0	61	24%	0.0	0	12	36%	0.0	0
55 / 59	57 °F	8	46%	0.0	0	93	33%	0.0	0	21	46%	0.0	0
50 / 54	52 °F	15	56%	2.5	38	125	42%	2.5	314	32	56%	2.5	80
45 / 49	47 °F	22	66%	2.5	56	150	51%	2.5	376	46	66%	2.5	115
40 / 44	42 °F	240	76%	2.3	561	237	60%	2.5	595	238	76%	2.3	556
35 / 39	37 °F	274	86%	1.5	403	234	69%	2.5	587	275	86%	1.5	404
30 / 34	32 °F	310	96%	0.4	116	214	78%	2.1	460	276	96%	0.4	104
25 / 29	27 °F	219	100%	-0.1	-29	148	87%	1.3	197	185	100%	-0.1	-24
20 / 24	22 °F	161	100%	-0.1	-21	94	96%	0.3	31	129	100%	-0.1	-17
15 / 19	17 °F	108	100%	-0.1	-14	63	100%	-0.1	-8	86	100%	-0.1	-11
10 / 14	12 °F	83	100%	-0.1	-11	32	100%	-0.1	-4	54	100%	-0.1	-7
5 / 9	7 °F	64	100%	-0.1	-8	16	100%	-0.1	-2	31	100%	-0.1	-4
0 / 4	2 °F	36	100%	-0.1	-5	6	100%	-0.1	-1	9	100%	-0.1	-1
-5 / -1	-3 °F	13	100%	-0.1	-2	2	100%	-0.1	0	4	100%	-0.1	-1
-10 / -6	-8 °F	7	100%	-0.1	-1	0	100%	0.0	0	1	100%	-0.1	0
-15 / -11	-13 °F	3	100%	-0.1	0	0	100%	0.0	0	0	100%	0.0	0
-20 / -16	-18 °F	1	100%	-0.1	0	0	100%	0.0	0	0	100%	0.0	0
		1,569			1,082	1,539			2,544	1,407			1,193

Annual kWh Saved: 4,820

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Energy Savings Analysis - Premium Efficiency Motor Installations at Bigelow Middle School

	Area	System/Equipment	Existing Motor						Proposed Motor		Annual Electric Savings		
			Standard Efficiency = "S"						Replace With Premium Efficiency Motor?	New Motor Efficiency	Annual Run Hours	Full Load kW Saved	Annual kWh Saved
			High Efficiency = "H"										
			RPM = "Nominal" RPM - 1800 Or 3600										
			Motor HP	VFD?	Load Factor	RPM 1800/3600	ODP TEFC	Motor Efficiency					
	Boiler Room	Hot Water Pump 5	5	No	80%	1800	ODP	85.5%	x	90.2%	4,613	0.18	839
	Boiler Room	Hot Water Pump 6	5	No	80%	1800	ODP	85.5%	x	90.2%	4,613	0.18	839
											Totals	0.4	1,678

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Energy Savings Analysis - Air Handling Unit Fan Variable Frequency Drives

I. Fan Motor Data And System Operating Parameters

Building: Oak Hill Middle School													
Unit #: AHU-8						<u>Daily/Weekly Occupancy Schedule:</u>							
Area Served: Auditorium													
Unit Type: AHU w/ DX													
Annual Time Period: All													
Scheduling Control In Place (Y/N): Y													
										Percent Occupied Times By Daily Time Period			
										12 AM To 8 AM		8 AM To 4 PM	
										4 PM To 12 AM			
<u>Design Fan Motor Data:</u>						Monday:		6:00 AM 3:00 PM		25%		88%	
						Tuesday:		6:00 AM 3:00 PM		25%		88%	
						Wednesday:		6:00 AM 3:00 PM		25%		88%	
						Thursday:		6:00 AM 3:00 PM		25%		88%	
						Friday:		6:00 AM 3:00 PM		25%		88%	
						Saturday:		12:00 AM 12:00 AM		15%		15%	
						Sunday:		12:00 AM 12:00 AM		15%		15%	
						Operating Percentage - Annual Total				22%		67%	
						Annual Occupied Hours Per Period				646		1,947	
						Total Annual Occupied Hours:				2,719		31%	
<u>With VFD:</u>													
VFD Losses:						3%		3%					
Fan Motor Full Load Input kw:						5.0		2.1		<u>Annual Months Of Operation At Above Weekly Schedule:</u>			
Fan Motor Minimum Input kw:						0.8		0.3					
						Month		System					
						January		100%					
						February		100%					
						March		100%					
						April		100%					
						May		100%					
						June		100%					
						July		100%					
						August		100%					
						September		100%					
						October		100%					
						November		100%					
						December		100%					
<u>Estimated Heating And Cooling Load Profiles And Fan Speeds Required</u>													
Daily Time Period	OA Temp.	Percent Space Heating Load	Supply Fan Percent Speed	Return Fan Percent Speed	OA Temp.	Percent Space Cooling Load	Supply Fan Percent Speed	Return Fan Percent Speed					
12 AM To 8 AM	50 °F	0%	60%	60%	95 °F	60%	100%	100%					
8 AM To 4 PM	50 °F	100%	100%	100%	50 °F	60%	75%	75%					
4 PM To 12 AM	50 °F	0%	60%	60%	95 °F	100%	100%	100%					
	5 °F	100%	100%	100%	50 °F	60%	75%	75%					

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Energy Savings Analysis - Air Handling Unit Fan Variable Frequency Drives

II. Estimated Annual Fan Energy Savings With VFD Speed Control Based On Temperature

Building: Oak Hill Middle School
HVAC System: AHU-8
Annual Time Period: All
Weather Data Location: Bedford, Massachusetts

Energy Savings Summary	
Total Annual kWh Saved:	8,439

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Design System Airflow CFM	Fan Energy Savings 12 AM To 8 AM				Fans Total kWh Saved	Daily Time Period	% Of Design System Airflow CFM	Fan Energy Savings 8 AM To 4 PM				Fans Total kWh Saved	Daily Time Period	% Of Design System Airflow CFM	Fan Energy Savings 4 PM To 12 AM				Fans Total kWh Saved
	12 AM To 8 AM		Fan Motor Input kW Reductions			8 AM To 4 PM		Fan Motor Input kW Reductions			4 PM To 12 AM	Fan Motor Input kW Reductions									
	System Hours		Supply Fan	Return Fan	Fans Total	System Hours		Supply Fan		Return Fan	Fans Total	System Hours	Supply Fan		Return Fan		Fans Total				
	System Hours		Supply Fan	Return Fan	Fans Total	System Hours		Supply Fan		Return Fan	Fans Total	System Hours	Supply Fan		Return Fan		Fans Total				
95 / 99	0	100%	0.0	0.0	0.0	0	2	100%	-0.2	-0.1	-0.2	0	0	100%	0.0	0.0	0.0	0			
90 / 94	0	98%	0.0	0.0	0.0	0	17	98%	0.1	0.0	0.1	2	0	98%	0.1	0.0	0.1	0			
85 / 89	0	96%	0.0	0.0	0.0	0	59	96%	0.5	0.2	0.7	41	1	96%	0.5	0.2	0.7	1			
80 / 84	1	93%	0.9	0.4	1.2	1	127	93%	0.9	0.4	1.2	155	3	93%	0.9	0.4	1.2	3			
75 / 79	6	90%	1.2	0.5	1.7	10	166	90%	1.2	0.5	1.7	285	6	90%	1.2	0.5	1.7	9			
70 / 74	26	87%	1.5	0.6	2.2	57	174	87%	1.5	0.6	2.2	379	9	87%	1.5	0.6	2.2	20			
65 / 69	49	84%	1.9	0.8	2.6	128	154	84%	1.9	0.8	2.6	402	11	84%	1.9	0.8	2.6	29			
60 / 64	58	82%	2.1	0.9	3.0	176	148	82%	2.1	0.9	3.0	449	11	82%	2.1	0.9	3.0	33			
55 / 59	60	79%	2.4	1.0	3.4	205	146	79%	2.4	1.0	3.4	496	11	79%	2.4	1.0	3.4	36			
50 / 54	56	76%	2.7	1.1	3.8	212	132	76%	2.7	1.1	3.8	498	10	76%	2.7	1.1	3.8	37			
45 / 49	54	63%	3.6	1.5	5.2	276	124	63%	3.6	1.5	5.2	637	9	63%	3.6	1.5	5.2	48			
40 / 44	53	67%	3.4	1.4	4.8	253	158	67%	3.4	1.4	4.8	752	10	67%	3.4	1.4	4.8	48			
35 / 39	61	72%	3.0	1.3	4.3	261	156	72%	3.0	1.3	4.3	671	12	72%	3.0	1.3	4.3	51			
30 / 34	69	76%	2.7	1.1	3.8	259	143	76%	2.7	1.1	3.8	540	12	76%	2.7	1.1	3.8	45			
25 / 29	48	80%	2.3	0.9	3.2	155	99	80%	2.3	0.9	3.2	316	8	80%	2.3	0.9	3.2	25			
20 / 24	36	85%	1.8	0.7	2.6	91	63	85%	1.8	0.7	2.6	160	6	85%	1.8	0.7	2.6	14			
15 / 19	24	89%	1.3	0.5	1.8	44	42	89%	1.3	0.5	1.8	77	4	89%	1.3	0.5	1.8	7			
10 / 14	18	94%	0.7	0.3	1.0	19	21	94%	0.7	0.3	1.0	22	2	94%	0.7	0.3	1.0	2			
5 / 9	14	98%	0.1	0.0	0.2	2	11	98%	0.1	0.0	0.2	2	1	98%	0.1	0.0	0.2	0			
0 / 4	8	100%	-0.2	-0.1	-0.2	-2	4	100%	-0.2	-0.1	-0.2	-1	0	100%	-0.2	-0.1	-0.2	0			
-5 / -1	3	100%	-0.2	-0.1	-0.2	-1	1	100%	-0.2	-0.1	-0.2	0	0	100%	-0.2	-0.1	-0.2	0			
-10 / -6	2	100%	-0.2	-0.1	-0.2	0	0	100%	0.0	0.0	0.0	0	0	100%	-0.2	-0.1	-0.2	0			
-15 / -11	1	100%	-0.2	-0.1	-0.2	0	0	100%	0.0	0.0	0.0	0	0	100%	0.0	0.0	0.0	0			
-20 / -16	0	100%	-0.2	-0.1	-0.2	0	0	100%	0.0	0.0	0.0	0	0	100%	0.0	0.0	0.0	0			
	646					2,146	1,947					5,884	125					409			

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Energy Savings Analysis - Rooftop Unit VFD

Building: Police HQ		Existing	Proposed	
Unit #: RTU-1	Scheduling And Setback Control	N	N	<i>Y = Included, N = Not Included</i>
Area Served: Building	Supply And Return Fan VFD's	N	Y	<i>Y = Included, N = Not Included</i>
System Type: VAV	Demand-Controlled Ventilation	N	N	<i>Y = Included, N = Not Included</i>
Annual Time Period: All Year	Cooling Economizer Control (D,E,N)	N	N	<i>D = Dry Bulb, E = Enthalpy, N = None</i>
	Cooling EER/SEER	12.4	12.4	<i>EER = 12/(kW Per Ton)</i>
	Fan Motor Efficiency Levels	H	P	<i>S = Standard, H = High, P = Premium</i>

Summary Of Estimated Annual Energy Usage - Existing HVAC System And Controls							Existing Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	9,338	745	0	312	9,338	Fans	3.2 kW
8 AM - 4 PM	Occupied	9,331	7,294	0	180	9,331	Cooling	0.0 kW
4 PM - 12 AM	Occupied	9,344	3,430	0	244	9,344	Total	3.2 kW
All	Unoccupied	0	0	0	0	0		
Totals		28,013	11,468	0	735	28,013		

Summary Of Estimated Annual Energy Usage - Proposed HVAC System And Controls							Proposed Peak Demand kW (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	6,732	1,016	0	312	6,732	Fans	2.6 kW
8 AM - 4 PM	Occupied	6,814	8,618	0	180	6,814	Cooling	0.0 kW
4 PM - 12 AM	Occupied	6,755	4,454	0	244	6,755	Total	2.6 kW
All	Unoccupied	0	0	0	0	0		
Totals		20,301	14,088	0	735	20,301		

Summary Of Estimated Annual Energy Savings - Proposed HVAC System And Controls							Peak Demand kW Reduction (Summer Peak)	
Daily Time Period	System Mode	Fans Total Annual kWh	Cooling Load Annual Ton-Hours	Cooling Total Annual kWh	Heating Total Annual MMBtu	Total Annual kWh		
12 M - 8 AM	Occupied	2,605	-271	0	0	2,605	Fans	0.6 kW
8 AM - 4 PM	Occupied	2,518	-1,325	0	0	2,518	Cooling	0.0 kW
4 PM - 12 AM	Occupied	2,589	-1,024	0	0	2,589	Total	0.6 kW
All	Unoccupied	0	0	0	0	0		
Totals		7,712	-2,620	0	0	7,712		

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Energy Savings Analysis - Rooftop Unit VFD

IV. Estimated Annual Energy Use - Existing HVAC System And Controls

Building: Police HQ
HVAC System: RTU-1
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	95%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	86%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	3	0%	77%	100%	3.2	0.0	3.2	10	0	0	9.7	29	0.00	0
75 / 79	27	0%	68%	100%	3.2	0.0	3.2	86	0	0	5.6	151	0.00	0
70 / 74	119	0%	59%	100%	3.2	0.0	3.2	381	0	0	3.0	355	0.00	0
65 / 69	221	0%	50%	100%	3.2	0.0	3.2	707	0	0	1.0	210	0.00	0
60 / 64	262	0%	41%	100%	3.2	0.0	3.2	838	13	3	0.0	0	0.00	0
55 / 59	271	0%	32%	100%	3.2	0.0	3.2	867	37	10	0.0	0	0.00	0
50 / 54	254	0%	24%	100%	3.2	0.0	3.2	813	61	16	0.0	0	0.00	0
45 / 49	242	17%	20%	100%	3.2	0.0	3.2	774	96	23	0.0	0	0.00	0
40 / 44	240	25%	20%	100%	3.2	0.0	3.2	768	115	28	0.0	0	0.00	0
35 / 39	274	33%	20%	100%	3.2	0.0	3.2	877	134	37	0.0	0	0.00	0
30 / 34	310	41%	20%	100%	3.2	0.0	3.2	992	155	48	0.0	0	0.00	0
25 / 29	219	49%	20%	100%	3.2	0.0	3.2	701	175	38	0.0	0	0.00	0
20 / 24	161	57%	20%	100%	3.2	0.0	3.2	515	196	32	0.0	0	0.00	0
15 / 19	108	65%	20%	100%	3.2	0.0	3.2	346	216	23	0.0	0	0.00	0
10 / 14	83	73%	20%	100%	3.2	0.0	3.2	266	237	20	0.0	0	0.00	0
5 / 9	64	81%	20%	100%	3.2	0.0	3.2	205	258	16	0.0	0	0.00	0
0 / 4	36	89%	20%	100%	3.2	0.0	3.2	115	278	10	0.0	0	0.00	0
-5 / -1	13	97%	20%	100%	3.2	0.0	3.2	42	299	4	0.0	0	0.00	0
-10 / -6	7	100%	20%	100%	3.2	0.0	3.2	22	319	2	0.0	0	0.00	0
-15 / -11	3	100%	20%	100%	3.2	0.0	3.2	10	339	1	0.0	0	0.00	0
-20 / -16	1	100%	20%	100%	3.2	0.0	3.2	3	359	0	0.0	0	0.00	0
2,918					9,338				312		745			

NORESCO

Estimated Annual Energy Usage - Proposed HVAC System And Controls

IV. Estimated Annual Energy Use - Proposed HVAC System And Controls

Building: Police HQ
HVAC System: RTU-1
Annual Time Period: All Year
Weather Data Location: Bedford, Massachusetts

Outside Air Temp. Bin Deg. F	Daily Time Period	% Of Peak Space Heating Load	% Of Peak Space Cooling Load	% Of Design System Airflow CFM	Fan Energy Use				Heating Energy Use		Cooling Energy Use			
	12 AM To 8 AM				Supply Fan Input kW	Return Fan Input kW	Fans Total Input kW	Fans Total kWh	Average Load MBH	Total Heating Input MMBtu	Average Load Tons	Total Load Ton-Hours	kW Per Ton	Total Cooling kWh
	System Hours													
95 / 99	0	0%	100%	100%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
90 / 94	0	0%	95%	96%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
85 / 89	0	0%	86%	91%	0.0	0.0	0.0	0	0	0	0.0	0	0.00	0
80 / 84	3	0%	77%	85%	2.3	0.0	2.3	7	0	0	11.1	33	0.00	0
75 / 79	27	0%	68%	80%	2.3	0.0	2.3	62	0	0	7.7	209	0.00	0
70 / 74	119	0%	59%	80%	2.3	0.0	2.3	275	0	0	4.7	564	0.00	0
65 / 69	221	0%	50%	80%	2.3	0.0	2.3	510	0	0	1.0	210	0.00	0
60 / 64	262	0%	41%	80%	2.3	0.0	2.3	604	13	3	0.0	0	0.00	0
55 / 59	271	0%	32%	80%	2.3	0.0	2.3	625	37	10	0.0	0	0.00	0
50 / 54	254	0%	24%	80%	2.3	0.0	2.3	586	61	16	0.0	0	0.00	0
45 / 49	242	17%	20%	40%	2.3	0.0	2.3	558	96	23	0.0	0	0.00	0
40 / 44	240	25%	20%	40%	2.3	0.0	2.3	554	115	28	0.0	0	0.00	0
35 / 39	274	33%	20%	40%	2.3	0.0	2.3	632	134	37	0.0	0	0.00	0
30 / 34	310	41%	20%	40%	2.3	0.0	2.3	715	155	48	0.0	0	0.00	0
25 / 29	219	49%	20%	40%	2.3	0.0	2.3	505	175	38	0.0	0	0.00	0
20 / 24	161	57%	20%	43%	2.3	0.0	2.3	371	196	32	0.0	0	0.00	0
15 / 19	108	65%	20%	46%	2.3	0.0	2.3	249	216	23	0.0	0	0.00	0
10 / 14	83	73%	20%	49%	2.3	0.0	2.3	191	237	20	0.0	0	0.00	0
5 / 9	64	81%	20%	52%	2.3	0.0	2.3	148	258	16	0.0	0	0.00	0
0 / 4	36	89%	20%	56%	2.3	0.0	2.3	83	278	10	0.0	0	0.00	0
-5 / -1	13	97%	20%	59%	2.3	0.0	2.3	30	299	4	0.0	0	0.00	0
-10 / -6	7	100%	20%	60%	2.3	0.0	2.3	16	319	2	0.0	0	0.00	0
-15 / -11	3	100%	20%	60%	2.3	0.0	2.3	7	339	1	0.0	0	0.00	0
-20 / -16	1	100%	20%	60%	2.3	0.0	2.3	2	359	0	0.0	0	0.00	0
2,918								6,732		312		1,016		0

Newton Public Schools - Energy Conservation through Behavior Change®



NORESCO's holistic approach toward performance contracting leverages the complex interaction between people and their environment to promote your members' participation in the energy efficiency process. To achieve the optimal benefit from newly installed high efficiency equipment and systems, in addition to generating added energy savings, NORESO will create a comprehensive, custom-tailored, program known as Energy Conservation Through Behavior Change® or ECTBC. This program is comprised of three components: (1) Awareness-Communication; (2) Green Schoolhouse Energy Education; and (3) a Sustainable Behavior Change Intervention. Using the inherent opportunity to "go green" within performance contracting, the ECTBC program instills and sustains a culture of energy efficiency within your school system.

This energy conservation measure is a cognitive-social-based program that promotes cultural change by reinforcing energy conserving behaviors while discouraging energy wasting behaviors. It relies on a tested and proven process which assesses attitudes, social norms, control perceptions, knowledge, behaviors, and other aspects of energy use among teachers, staff, and students. Assessing these factors allows NORESO to custom-tailor a program specifically for Newton Public Schools (NPS). Our program has multiple associated individual, organizational, and community benefits in addition to reducing energy consumption. These benefits occur while enhancing the educational learning experience and increasing your sustainability through greater effectiveness.

Utilizing archival data, individual meetings, focus groups, and a behavioral survey, our program is designed to use existing mechanisms to target impactful energy wasting behaviors. It is also structured to enhance energy consumption knowledge and promote other energy efficiencies. Students enjoy the Green Schoolhouse curriculum enhancement while teachers and staff are often the logical focal group to participate in the Sustainable Behavior Change intervention. Influential change agents are then trained in the use of seven behavioral change tools to effect targeted behavior change where substantial energy savings can be achieved.

The program's objective is to initiate and sustain an ever increasing culture of energy efficiency both school, and district-wide. Concurrently, hands-on educational activities for students, often created from the building retrofits themselves, strengthen and enhance academic learning. In this way, students also participate in the performance contract, while utilizing project-based instruction and tools to become better Earth stewards at an impressionable age. From a specially designed homework assignment, students bring family and community into the energy efficiency process, too. This holistic approach impacts all stakeholders within NPS through a well-received initiative – that of saving money and energy while upgrading existing structures – all paid from energy savings.

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A brief description of a custom-tailored ECTBC Program follows.

ECTBC #1: AWARENESS-COMMUNICATION

The Awareness-Communication component begins by informing all members about the purpose and benefits of the project, communicating the changes that can be expected resulting from the project, and providing a means for questions, concerns, and/or suggestions to be addressed directly to the project manager. Our process includes face-to-face meetings, lectures-workshops, and the use of web sites, newspapers, and other communications media. Next, we disseminate information about the benefits of the project on a larger scale. This information is designed to enhance both internal and external perceptions of NPS, which can lead to multiple positive outcomes. Communicating this enhanced environmentalism and stewardship of the Earth's resources, along with your increased competitiveness (due to enhanced, smart buildings) can bolster confidence that your staff and faculty are employed by a sustainable organization. In essence, because reducing pollution, decreasing natural resource consumption, and increasing operational efficiency are so universally well received, NORESOCO wants to communicate this project's activities to the widest possible audience.



The goals of NORESOCO's Awareness-Communication component are to:

- Inform members of efforts to reduce operating costs, conserve natural resources, and provide more comfortable facilities.
- Ensure that those who will be affected by the changes are well informed and have had their views and issues addressed.
- Present an opportunity for interested individuals to interact or to incorporate sections of this program into their work and/or educational experience.
- Raise awareness of energy consumption and conservation efforts through custom-designed promotional media while encouraging everyone to reduce personal energy use.
- Provide updates, changes, current status, and impacts of the ECM benefits and savings to an interested and aware audience.
- Generate awareness and recognition of all energy conservation activities and accomplishments to a regional and state-wide audience.

ECTBC #2: Green Schoolhouse Energy Education

The Green Schoolhouse Energy Education component makes use of the buildings' energy efficient retrofit activity occurring in an educational setting. Infusing green values in students at the same time the buildings in which they learn are becoming more energy efficient is an exciting opportunity to engage students in the energy efficiency process. Utilizing hands-on, project-based instruction and tools will motivate students toward achieving a deeper understanding of what it means to be energy conscious. Similar to the old adage, "Let your actions speak for you;" NORESO lets the buildings "speak" to the students. When students discover first-hand the impact of lighting upgrades, improved heating equipment, and automatically adjusted temperatures with set points, they realize that they are living a daily lesson of what it means to be energy efficient.



The goals of NORESO's Green Schoolhouse Energy Education component are to:

- Incorporate existing conservation activities (i.e., recycling, student energy patrol, green team) into the Awareness-Communication activities.
- Offer components of the project to interested teachers, students, and clubs to facilitate conservation activities and enhance educational processes.
- Place energy and emission reduction displays on site at visible locations describing a specific ECM, how it functions, and how this ECM benefits students, teachers, staff, and the community at large.
- Create hands-on learning activities for students of all ages utilizing actual old and new technologies within their buildings.
- Provide educational classroom workshops describing in detail the benefits of specific ECMs for specific buildings.
- Create a "homework" activity that allows students to display and enhance their newly-learned energy efficiency knowledge, while possibly saving their parents money on their home energy bill.
- Assist and enhance existing green curriculum.

ECTBC #3: Sustainable Behavior Change

Our Sustainable Behavior Change component consists of a scientifically rigorous and well-documented process designed by Dr. Scott Finlinson that is implemented in conjunction and cooperation with staff. First, a focal group is chosen who can influence a substantial amount of your energy consumption. Next, a Human Behavior Energy Audit™ collects data regarding energy consuming behaviors, knowledge, and the facilitators and barriers driving these behaviors.

After data analysis, specific behaviors are targeted for change, guided by the enhanced understanding of environmental attitudes, social systems, control perceptions and knowledge of energy use among members of the community at large and the focal group specifically. Targeted behavior change and

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organization-wide supporting actions, in combination with the Awareness-Communication and Green Schoolhouse components, initiate and sustain this behavior change. Hence, a culture of energy efficiency that minimizes greenhouse gas emissions and maximizes energy savings is established.

The goals of NORESO's Behavior Change Intervention component are to:

- Incorporate existing conservation activities and all ECTBC components into the focal group's daily activities.
- Target for change impactful energy consumption behaviors.
- Legitimize the focal group's influence in persuading others to change their energy wasting behaviors.
- Create awareness of the focal group's accomplishments to further generate widespread behavior change.
- Promote and recognize the focal group's individual members as energy efficiency leaders, while encouraging additional conservation activities.

ECTBC Program Example Implementation Schedule

Initial Component

- Create and distribute initial announcement of the project to all organizational members, complete with a general overview, specific details of the ECMs, projected schedules, savings and benefits, and contact information for additional questions and/or issues.
- Meet with representative members @ 30-minute meetings to explain the ECMs and purpose of the project, solicit support and ideas, address questions and issues, put a face on the project, and leave contact information.
- Initiate a web-based energy survey to collect information relating to energy efficiency for the purpose of developing an energy efficiency campaign/program.
- Identify specific ECMs to highlight in the Green Schoolhouse Energy Education component.

2-3 Months Later

- Create and distribute a press release announcing the initial performance contract and/or write an article for newsletters.
- Augment and incorporate existing energy conservation activities into press announcements and other promotional activities.
- Assist interested members in augmenting existing environmental activities or creating new ones.
- Work with web site personnel to create a continuing information section or "box" displaying energy saved, pollution and emission reductions, scheduled changes, etc.
- Design, implement, and assess a custom-tailored Sustainable Behavior Change intervention aimed at reducing energy consumption among the custodial staff, faculty, or other focal group.

- Create custom-tailored information kits: fact sheet, calendar, suggested action timeline, conservation posters, prompts/reminders, incentives, and promotionals. Create a “Champion” packet for emerging leaders to champion the conservation cause.
- Construct a display and/or other materials promoting NORESO-led physical changes (e.g., before-after pictures for lighting, projected savings, emission reductions, etc.).

Several Months Later

- Post-survey a representative sample of focal group members.
- Analyze post program global and specific attitudes, social norms, perceived behavioral control, volitional energy consuming behaviors, motivational factors, barriers, future improvements, program satisfaction, and other suggestions.
- Write and submit recognition/award documents as appropriate.
- Write report: executive summary, introduction, methodology, key findings, future directions and suggested modifications and appendices.

NEW DOMESTIC HOT WATER HEATERS IN BIGELOW AND OAK HILL

Overview

During the detailed audit, it was brought to NORESO's attention that there were two schools that had problematic domestic water heating (DHW) systems. NORESO will replace the Bigelow and Oak Hill Middle School domestic hot water systems with new systems. Specifically, we will install a new oil-fired DHW boiler and storage tank at Bigelow, and a new oil-fired tank heater and storage tank at Oak Hill. While there will be some savings achieved with this measure, the equipment is beginning to fail and has exceeded their useful service lives and should be replaced as soon as possible.

Affected Areas

- Bigelow Middle School
- Oak Hill Middle School

Detailed Description

Existing System

The existing domestic hot water system at Oak Hill Middle School is comprised of a Bock 85-gal oil-fired tank heater and a Bradford-White 100-gal storage tank, both of which appear to be leaking. An identical Bock tank heater is also piped into the storage tank but has been valved off.

Bigelow Middle School's domestic hot water is supplied by an old, oil-fired Smith cast iron sectional boiler and two 1,000 gal storage tanks. NORESO engineers did not detect any noticeable leaks around the boiler or storage tanks, but both are original to the building and past their expected service lives.



Oak Hill Middle
Domestic Hot Wat

Bigelow Middle School
Domestic Hot Water Boiler

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Recommended Improvements

At the Bigelow Middle School, NORESO recommends replacing the tank heater and storage tank with a new oil-fired domestic hot water heater and storage tank. The existing tank heater and storage tank will be abandoned in place.

At the Oak Hill Middle School, NORESO recommends replacing the existing domestic hot water boiler with an oil-fired tank heater and storage tank similar to the proposed equipment. The existing boiler would be abandoned in place and the existing piping, breeching, and electrical equipment would be reused. The replacement of old, inefficient equipment will result in savings due to the newer burner and reduced jacket losses on the tank heater and storage tank versus the existing equipment.

Scope of Work

The scope of work will include the following:

- Dismantle, remove, and dispose of the existing tank heater and storage tank (Oak Hill), making safe piping, fuel lines, electrical, and breeching equipment to be reused or rendered obsolete.
- Abandon in place existing domestic water boiler (Bigelow).
- Provide and install a new tank heater and storage tank (Oak Hill), similar in operation and energy input to the existing equipment.
- Provide and install a new oil-fired tank heater and storage tank (Bigelow).
- Provide necessary piping, valving, and exhaust modifications to complete the installation of the new equipment.
- Equipment will be furnished with the manufacturer's recommended unitary controls package.
- Provide required specialty devices, isolation valves, safety devices, etc. All installed equipment will meet applicable code and permit requirements of local and state authorities holding jurisdiction.
- Provide electrical work to complete system.
- Provide patching, fire-stopping, caulking, sealants, and insulation for new and demo work, including existing building structures or systems that have been disturbed or modified during the removal or installation processes.
- Provide startup and commissioning from a factory-authorized representative and provide the necessary pre-functional and functional testing documentation required by the manufacturer.

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Asbestos abatement beyond that explicitly described above is excluded from NORESKO's scope of work. Should NORESKO encounter any materials suspected of containing asbestos, we will immediately stop work and notify City personnel. The City will be responsible for asbestos removal and abatement.

Interface with Existing Systems and Operations

Impact on Facility Operations and Performance

The facility will benefit from reduced service and maintenance costs and energy consumption.

Maintenance

NORESCO expects maintenance of the installed equipment to be comparable to or less than current maintenance requirements.

Customer Training

NORESCO will provide O&M manuals for the installed equipment.

Equipment Information

Manufacturer and Type

The proposed equipment will be manufactured by one of the following, or equal:

- **Bock Water Heaters** 110 S Dickinson Street Madison, WI 53703 (608) 257-2225

***Replace DHW Heaters
I. Savings Calculations***

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SECTION D APPENDIX

D.1 SOURCES OF INFORMATION

City of Newton

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Energy Efficiency Program Manager, NSTAR
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(781) 907-1578

D.2 CALCULATIONS

Energy and water savings calculations are included within each tabbed ECM